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THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

W. BRAITHWAITE, M.D.,

LATE LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN AT THE LEEDS SCHOOL OF MEDICINE, ETC.

AND

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A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOLLOWING PAGES: SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

AFFECTIONS OF THE SYSTEM GENERALLY.

ACUTE RHEUMATISM.—*Treatment by Blisters.*—Place blisters of considerable size around the limbs, in close proximity to the inflamed joints, with the object mainly of affording through the serous discharge from the blistered surface, a ready means of exit for the poison or materies morbi. Six or seven blisters may be applied simultaneously, and linseed-meal poultices subsequently applied will favour a sufficient flow of serum. The most important results observed in the cases thus locally treated are, the rapid diminution in the force and frequency of the pulse, and the immunity of the heart from inflammatory mischief. The usual alkaline plan of treatment produces great depression of general power. This treatment is of no use in gout, for the crystalline urate of soda cannot be expelled like the fluid poison of acute rheumatism, but is deposited as a solid in the inflamed joint. (Dr. Davies, *Clinical Lectures and Reports of London Hospital*, 1864, p. 293.)

CANCER.—*Galium Aperinum.*—In the same manner as a similar remedy acts in scurvy, the fresh juice of the galium aperinum seems to act in cancer, altering and improving the unhealthy condition of blood. It has been long employed as a popular remedy in cancerous affections. A solid extract is a convenient form of preparation, of which a drachm and a half may be given twice a day dissolved in a wineglassful of water. (Mr. F. A. Bulley, p. 141.)

DELIRIUM OF FEVER.—*Sulphuric Ether and Ammonia.*—In cases of violent delirium of fever, with hot burning skin and quick pulse, wine is quite inadmissible, notwithstanding the depression and sordes, as it increases the delirium and excitement. A mixture of sulphuric ether and carbonate of ammonia will be found to act beautifully, particularly where

there is subsultus tendinum, or muscular spasm of the limbs. The addition of ipecacuanha wine in doses of three or five drops materially assists in removing the sordes and promoting perspiration. (Dr. H. Osborn, p. 29.)

DROPSY.—*Stork's-bill.*—The Erodium cicutarium or common stork's-bill, an indigenous plant belonging to the natural order Geraniaceæ, is a remedy of great use in dropsies, as it possesses considerable diuretic properties. It grows abundantly by the sea-side, in sandy situations. It should be used as a decoction, two ounces of the dried plant in three pints of boiling water. An interesting case is related in which it acted very beneficially, after the failure of digitalis and other diuretics, and also of hydrogogue cathartics. (Dr. W. Abbotts Smith, p. 96.)

FEVER.—*Stimulants and Food.*—Keep the patient cool, sponge his skin over three or four times a day, give him plenty of liquids to support the renal respiration, and plenty of fresh air to support the pulmonary respiration. The plan of giving enormous doses of brandy is bad; if the patient is likely to die, no amount of brandy will save him, and the plan of giving him nourishment every half hour may be carried to an injurious excess, for it is very doubtful whether any of the nourishment given in severe cases is assimilated. (Dr. Gull, p. 12.)

INTERMITTENT FEVER.—In recent cases there is frequently considerable gastric derangement. In such cases, quinine must never be given until the tongue is tolerably clean, and the stomach free from irritability. The minimum dose of quinine required to prevent a paroxysm is ten grains, and it must be given three hours before the expected attack. Where, however, the paroxysms are irregular in their character, five grains of quinine given every four hours generally answers thoroughly. Out of 109 recent cases, 102 yielded at once, either to ten grains, or to five grains, every four hours, and in but seven was a repetition or continuance of large doses required. To guard against relapse, quinine was generally continued in doses of two grains three times a day, for a week or two. It is quite impossible to check a paroxysm with the liq. potass. arsenitis, however administered, in the same manner as it is with quinine. (Dr. S. H. Ward, p. 20.)

Salicine.—It has long been known that salacine, the alkaloid obtained from the common white willow, possesses febrifuge properties, but it has not been employed in sufficiently large

doses. It may be given simply as a decoction of the bark, associated with other bitter and aromatic vegetable extracts. An ounce to a pint of water is the proper strength for a decoction. M. Cazin, of Calais, usually combines it with camomile and wormwood. (p. 31.)

RHEUMATIC FEVER.—After the acute feverish symptoms have been allayed by the use of calomel and opium, followed by a purgative, it is a great element in effecting a rapid cure to commence at once with the administration of quinine or bark, or a combination of both. The calomel and opium are far preferable to Dover's powder, as they do not cause and keep up profuse perspiration. No other application is necessary, or is so grateful to the affected joints as warm dry cotton. (Mr. J. Roberton, p. 21.)

ZYMOTIC DISEASES.—*Sulphites.*—Not only sulphurous acid, but the sulphites of the alkalies and earths possess the property of arresting fermentation, and neutralizing catalytic action. Hence in catalytic (zymotic) diseases, the salts of sulphurous acid, the sulphites, hyposulphites, and bisulphites, are remedies of the greatest value, arresting the action of the ferment in the blood. The administration of these salts has been very extensively tried by Dr. Polli, of Milan, and by the author, "and in every case their administration seemed to be of decided advantage." The bisulphites of soda may be given in doses of twenty grains every hour in severe cases of scarlatina, poisoned wound, measles, or fever, and in smaller doses to children. It is quite unproductive of any injurious effects. (Dr. de Ricci, p. 23.)

AFFECTIONS OF THE NERVOUS SYSTEM.

EPILEPSY.—*Belladonna.*—A case of epilepsy in a young man is related, which remained unamenable to apparently judicious treatment, until belladonna was administered in doses of one-sixth of a grain of the extract three times a day. It was an ordinary case of epilepsy, the only noteworthy thing being that the attacks invariably followed the ingestion of alcohol in any form. (Dr. J. C. Thorowgood, p. 36.)

FACIAL NEURALGIA.—*Acupuncture.*—The cause of facial neuralgia is probably a superabundance of nervous fluid in the nerve affected. Nervous and electrical power are identical, hence it follows that if a conductor be presented to a nerve so overcharged, the superabundant fluid will escape and the pain cease. This is practically found to be the case. Let two or three sewing needles be inserted near to where the supra-

orbital nerve issues above the eye, and neuralgic pain in the forehead will cease. This plan does not answer in all cases, but in many it proves of almost magical efficacy. (Mr. W. Craig, p. 38.)

FACIAL PARALYSIS.—*Local Injection of Strychnia.*—Inject a few drops of a solution of strychnia along the course of the facial nerve, between its exit at the stylo-mastoid foramen and its passage to the neck of the condyle of the lower jaw. The injection must be repeated every two or three days. In three cases in which this has been tried, a perfect cure resulted in from three to six injections. (M. Courty, p. 42.)

NEURALGIA AND MUSCULAR RHEUMATISM.—Idiopathic neuralgia and muscular rheumatism are two varieties of the same disease, the nerves of common sensation being affected in both, and the causes of both being the same. A piece of linen more or less wetted with chloroform must be laid on the painful part, and covered with the palm of the hand. This plan generally relieves very rapidly. (Dr. Dupuy, p. 42.)

PARALYSIS OF THE HAND AND FOREARM FROM EXCESSIVE SMOKING.—A case of "dropped hand" is related, which the author considers arose indubitably from the excessive use of tobacco. It certainly rapidly passed off on discontinuing the habit, and no other cause whatever could be assigned for it. (Dr. A. J. H. Banks, p. 44.)

RHEUMATIC MUSCULAR PAIN.—Apply the following ointment with a feather over the seat of pain, and then cover the parts with cotton wool and a waterproof cloth. ℞. Tinct. aconiti, ʒj.; adipis, ʒij.: chloroformi, ʒj.; morphiæ muriatis, gr. xv. Mix the tincture with the lard, and add the chloroform and morphia in a glass mortar; keep in a wide-necked and well-stopped phial. (Dr. Dupuy, p. 43.)

TETANUS.—*Ice to the Spine.*—In an interesting case of recovery from tetanus great relief seemed to follow the application of ice along the whole course of the spine. (Mr. Adams, p. 35.)

Local use of Tobacco.—In cases in which it is thought advisable to administer tobacco internally, it is well to apply it at the same time to the wound which originates the mischief. When it is desirable to make a decided impression quickly, a solution of nicotine of known strength may be used. The influence of the drug may be obtained by local use only, much of the depression attending its internal administration is thus avoided. (Mr. H. J. Tyrrell, p. 32.)

AFFECTIONS OF THE CIRCULATORY ORGANS.

FATTY HEART.—*Diagnosis by the Pulse.*—In many cases of fatty heart the pulse beats exactly at the healthy standard as to frequency, but even in these there is a peculiarity, and one diagnostic of the state of heart. The organ being enlarged, so to speak, the pulse is so likewise, at the same time that the beat to the finger does not convey the idea of strength. It is large and compressible, "passing sedately under the finger." It is action without power. (Dr. H. Kennedy, p. 44.)

Fatty disease of the Heart induced by Tobacco.—The habit of smoking is in many cases the predisposing cause of the disease. Tobacco is a depressor of the nervous system, and its habitual use engenders a state of health which is very apt to be followed by a fatty heart. (Dr. H. Kennedy, p. 48.)

HEART.—*Effect of Tobacco on the.*—It very frequently happens that inveterate smokers have an intermittent pulse, quite unexplainable by organic lesion of the heart. The normal action of the heart will in a large proportion of such cases be restored on the abandonment of the habit. (M. Decaisne, p. 50.)

HEMORRHAGE.—*Wire Compress.*—The following plan of arresting hemorrhage after operations has some advantages which acupressure has not. Thread a piece of very fine soft passive iron wire with a needle at each end, and, having seized the bleeding point with forceps (merely to accurately indicate its position), pass the two needles one at either side of, and close to the artery through the flap, and let them emerge on the cuticular surface about half-an-inch apart. Remove the needles, place a little piece of cork on the skin between the emerging wires, and twist the latter together until the hemorrhage is arrested. The process is then complete. To remove the wire, cut one end close to the skin, remove the cork, and place one finger firmly in the position previously occupied by the cork: gradual, firm, but gentle traction of the other end will readily remove the wire. The process is easy, effectual, and admits of accurate adjustment of the cut surfaces and edges. (Mr. J. Dix, p. 121.)

HEMORRHOIDS.—*Persulphate of Iron Externally.*—Bathe the piles freely with lead water, and on retiring to bed at night apply ferri persulphas, ℥ss., cerate simplex, ℥j., well rubbed together. In ulcerated hemorrhoids, and when the constitution is debilitated from diarrhœa or excessive fatigue, this application gives great relief, soothing pain and cauterizing the part. (Dr. G. S. Cartwright, p. 157.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

HOOPING COUGH.—*Bromide of Ammonium.*—After freely trying the bromide of ammonium in hooping cough, the author observes, "In nearly all the cases there was marked relief to the hoop after a few doses had been given." Dr. Gibb, of London, who first introduced the drug, gives two or three grains thrice daily to infants, and four, eight, or even ten grains, as frequently, to older children. (Dr. R. P. Ritchie, p. 57.)

PHTHISIS.—*Living in the Open Air.*—Dr. Blake, San Francisco, California, has published in one of the American journals a plan of treating phthisis perhaps more applicable to California than to England. He directs his patients to live entirely in the open air during the summer months, changing their habitat in winter to a part having the same winter temperature as had their summer residence. The patients are directed not even to sleep in tents, but out under the trees, and to live on plain camp fare. Dr. Blake believes that, except in those cases in which the destruction of lung tissue is too extensive, there are few which cannot be cured by patients availing themselves of the summer climate of California and of the winter climate of Mexico. (Dr. J. Blake, p. 56.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ABDOMINAL TUMOURS.—*A New Means of Diagnosis.*—Tumours in the abdomen connected with a part which moves with the respiratory act, such as the stomach, transverse colon, and liver, of course are affected by this action along with the organs to which they are attached. This forms a valuable means of diagnosis from tumours springing from immovable parts, as the aorta (aneurism), the kidneys, or the abdominal walls themselves. This motion, synchronous with respiration, is not to be confounded with mobility of tumours by the hand of the surgeon, and it must be remembered that a tumour springing from an organ movable by respiration, may by peritoneal adhesions become immovable. (Dr. H. Kennedy, p. 61.)

Tumours from the Colon being Dilated with Hard Fœculent Matter.—There is usually more than one such hardened mass perceptible on careful manipulation. A very valuable aid in the diagnosis of such tumours, is the fact that they are impressed, as it were, with a certain amount of movement in themselves, owing to the slow peristaltic action of the bowel. It will frequently be observed that the tumours have altered

their position slightly, but still so as to leave no doubt on the point. (Dr. H. Kennedy, 63.)

ACUTE HEPATITIS IN THE EAST.—No time must be lost, as suppuration will take place in a severe case in the course of a few days, or even hours. General bleeding must be carried to the extent of relieving pain when such is present, or the dull tensive weight and uneasiness in the right side complained of in other cases, and the operation should give full freedom of respiration, and relaxation of the surface of the body. After some hours, should these indications of relief prove lasting, then, in a constitution otherwise sound, another free abstraction of blood must be made, followed by leeches to the side, repeating these local abstractions until all the serious symptoms shall have vanished. Mercury may be used as an adjuvant, "its exclusion from the treatment of acute hepatitis in Bengal is unsafe and unwarranted." After the subsidence of all the more acute sequelæ the persevering use of the nitro-nuriatic acid will go further towards restoring the healthy condition of the liver than any other means. (Sir J. Ranald Martin, p. 77.)

DYSPEPSIA FROM ZINC IN WATER.—Some spring water contains free hydrochloric acid. If this water is passed through pipes coated with zinc (which is frequently the case) the water will become impregnated with a salt of zinc. Dyspepsia and other symptoms arise from this. (Dr. H. Osborn, *Med. Times and Gazette, May* 28, 1864, p. 586.)

ENLARGED TONSILS.—The practice of applying caustics, alteratives, or absorbents for the reduction of hypertrophied tonsils is inefficient; but a positive effect has been accomplished by the use of escharotics. The "London paste" employed by the author is composed of caustic soda and lime moistened with a little absolute alcohol. This paste penetrates rather than spreads. It must not remain in contact with the hypertrophied tonsil for more than five seconds. A little instrument has been contrived, and will be found figured at p. 145, intended to prevent the accidental contact with parts not meant to be touched. (Dr. M. Mackenzie, p. 143.)

HARE-LIP.—*Operation for.*—The earlier the operation is performed the better; it should decidedly be done before teething, and usually within the first month, and even a few hours after birth. If, however, the child is weakly, and the gap large and complicated with cleft palate, the operation should be delayed for some months until additional strength is acquired, and also that the parts may be pushed closer in apposition by means of an instrument adapted for that pur-

pose; and the same instrument must be employed after the operation, instead of strapping with plaister, in order to keep the parts together (this instrument will be understood at once by reference to the woodcut at p. 133). If a notch or irregularity is left in the lip, it arises generally from too little having been cut away from the margins of the fissure, and to ensure a good and easy approximation of surfaces there must be a free separation of each side of the fissure from the aveolus. (Prof. Fergusson, p. 132.)

INTUSSUSCEPTION. — *Insufflation.* — Introduce the nozzle of a small pair of bellows into the anus, and inject air gradually, but to a considerable extent. The invaginated part will sometimes pass up with a distinct crack. Water is not borne like air, indeed in some cases very little can be got up. Air may be injected until the body shows signs of considerable distension. The symptoms of intussusception are briefly, the sudden seizure, the obstinate vomiting and constipation, the pain, the hard tumour in the abdomen, but chiefly the passage of blood per anum. (Dr. D. Greig, p. 68.)

LARYNX. — *Glycerine as a Vehicle for Local Applications.* — One of the best vehicles for local applications to the larynx is glycerine. Two drachms of tannic acid dissolved in an ounce of glycerine is frequently of much use. A moderately strong solution of morphia in glycerine is a most soothing application in cases of irritable larynx. Being viscid, it adheres to the surface of the mucous membrane, and retains there the astringent or the sedative which it holds in solution. It may be mixed with a solution of nitrate of silver, or with one of perchloride of iron, or it may be made the vehicle for alum. It must always be applied by means of a brush. (Dr. G. Johnson, p. 148.)

STRANGULATED HERNIA. — *Extra-peritoneal Operation.* — All that is necessary in practice is to relieve the tension of Gimbernat's ligament in femoral hernia, of the conjoined tendon or fibrous aperture in inguinal hernia, and of the linea alba in umbilical and the more common forms of ventral hernia. These structures may be reached and relaxed, the cutaneous tissues only being divided, prior to the use of the hernia knife. Make a short incision through the skin and superficial fasciæ, near the neck of the tumour, and sufficiently large to admit the end of the finger, to such an extent as to enable the finger nail to detect the interstice or boundary line between the firm unyielding apertural margin and the more movable and yielding tissues of the hernia. Insinuate the hernia knife along the finger nail (it should be blunt-pointed but cutting to the point) close to the constricting margin. It must be used very sparingly and must not go

beyond the finger nail. The incision must be followed by pressure with the nail and tip of the finger, in the same direction. The hernia may now be returned. (Mr. F. Jordan, p. 148.)

In cases of strangulated hernia it is quite unnecessary even to expose the sac. Make a superficial incision on one side of, but about an inch below the neck of the hernia. This incision should be transverse to the deeper one, which must be carefully made through the connective tissue covering the pectineus muscle in femoral hernia until the finger can be carried, covered by some connective tissue, outwards upwards and backwards, to the edge of Gimbernat's ligament. The hernia knife must now be carried along the finger nail, and a line or two (according to the amount of connective tissue) beyond; the edge is turned to Gimbernat's ligament and a very sparing incision made transversely inwards. The tip of the finger now being firmly pressed towards the the spine of the pubes, and the thigh flexed and rotated inwards, the hernia may be readily returned. In inguinal hernia the careful division of the superficial fasciæ will enable the finger to pass along the neck of the tumour to the seat of strangulation. This plan of operation is especially applicable to umbilical hernia. (Mr. F. Jordan, p. 153.)

AFFECTIONS OF THE URINARY ORGANS.

ACUTE ORCHITIS.—*Puncturing the Testicle.*—The pain from this disease is frequently almost unbearable, and is but slowly relieved by the ordinary treatment, viz., leeches, and ice applied to the part, followed by strapping with plaster. Instead of this take a small sharp bistoury and puncture the inflamed organ; blood and serum will escape with very great relief to the pain. The ordinary practice at the Hôpital du Midi, in Paris, is to puncture in several places with a lancet; the instrument is not carried into the body of the testicle, but simply through the tunica albuginea, to tension of which the pain is chiefly owing. (Mr. Henry Smith, p. 183.)

ALBUMEN IN THE URINE.—*Detection of.*—The following is the most sensitive way of using nitric acid for the detection of albumen in the urine:—Pour not less than half a drachm of fuming nitric acid into a test tube; incline it, and then let a like quantity of the suspected urine trickle down very slowly to the acid. If albumen be present, a milk-white, sharply-defined, tolerably tenacious film will form at the exact point of junction of the two fluids. Sometimes this film is so thin as only to become visible by reflected light when the test tube

is inclined. If, in immediate contact with the acid, a ruby or violet ring is developed, uroxanthine is present; and bile also, if in addition to a red or violet there is formed likewise a green coloured ring, which remains for some time. (Dr. A. Clark, p. 169.)

DEPOSITS OF URATES IN THE URINE.—A frequently recurring deposit of pink urates, without any assignable cause, in nine cases out of ten, depends on some chronic affection of the heart, liver, or spleen, associated with a tendency to gravel. In such cases alkaline tonics should be given, or the acid salts of vegetable acids, as citrates, tartrates, lactates, or acetates, which, in the system, are converted into alkaline carbonates. (Dr. G. Harley, p. 81.)

LITHIC ACID DIATHESIS.—In all cases of lithic acid diathesis the carbonate of ammonia should be avoided on account of the salt which it forms being much less soluble than that formed with lithic acid by potash, soda, or lithia. In cases of uric acid deposit it is unnecessary to render the urine more than neutral. Indeed, there is a danger in making it alkaline, from the circumstance that phosphates have a great tendency to form round uric acid calculi. (Dr. G. Harley, p. 83.)

LITHOTOMY.—*A cause of failure in the Operation.*—Most of the cases hitherto related as instances where the incisions for lithotomy have been made and a stone has not been found, have been examples where the surgeon has failed to reach the bladder. This occurs more frequently in children than in adults. For the perineum is much deeper in proportion in the child than in the adult, and, in addition, all the material is loose, lax, and loaded with fat. The circumstance that the bladder is more abdominal than pelvic in early life has been greatly overlooked. To avoid this accident more care than is usually given should be devoted to the operation, and as the surgeon cuts into the membranous portion of the urethra and neck of the bladder, he should never push the point of his forefinger onwards, unless he feels certain that he has it between the staff and the wound. (Prof. Fergusson, p. 159.)

A New Lithotomy Tube.—In cases of lithotomy in adults (in whom the wound is long), and in children when the operation has been prolonged and the cellular tissue considerably disturbed, the introduction of a tube through the wound and its retention in the bladder for several days afterwards, is a measure of the greatest value. A woodcut and description of a tube intended for this purpose will be found at p. 169. The tube is curved and of as large a bore as possible, and a piece of sponge is passed through it, projecting at each end.

This sponge is intended to take up the urine by capillary attraction, and convey it through the tube. Over the end of the tube an india-rubber receptacle for the urine may be tied. (Mr. J. Hutchinson, p. 168.)

Lithotomy in the Female.—Dilatation of the urethra in the female may be effected very easily and safely, by passing into the urethra a number of pieces of catgut bougie, about four inches long, as many as can be introduced conveniently. They may be secured in position by a thread tied round them, and attached to a bandage which, passing over the os externum, has a slit in it to admit the bougies, and is tied at either end to another bandage round the waist. The bougies becoming swelled, dilate the passage in the gentlest and most gradual manner. Additional bougies may be added, in such numbers and at such intervals as is found to be desirable. The fresh bougies must be oiled, and inserted between those that are already there. The dilatation usually takes between twenty-four and forty-eight hours. (Dr. G. M. Humphry, p. 172.)

LITHOTRITY.—As a first-step a lithotrite of considerable size should be introduced, equal to a No. 10 or 11 bougie, and the stone be broken into various fragments. Next take a very small lithotrite, and crush the fragments, and then use the small scoop with the object of removing some of these fragments. In a few days use the small crusher and scoop again, but particularly the latter, with which fragments may be extracted singly, or two or three together. This is a much better plan than waiting for the spontaneous escape of the fragments. Very large lithotrites are by no means necessary, and are grasped too closely by the urethra to admit of ready manipulation. Moreover a fragment of considerable size may remain betwixt the blades of a small lithotrite, and yet the united size or diameter may readily pass or be drawn along the urethra. (Prof. Fergusson, p. 162.)

STRICTURE OF THE URETHRA.—*Holt's Dilator.*—The author says that the rapid dilatation of strictures by means of his dilators may be performed with as great safety as any operation in surgery, providing that the surgeon will only ensure the dilator being passed fairly through the stricture and not through the side of urethra, as has been done. (Mr. B. Holt, p. 178.)

UROHÆMATIN.—*Its Pathological Significance.*—The colour of the urine as passed is a most treacherous guide as to the healthiness of the secretion. Many specimens of pale urine, when boiled with a quarter their bulk of strong nitric acid, develope a deep mahogany colour; this is from the presence of an exces-

sive amount of urohæmatin, indicating great destruction of blood corpuscles, the debris of which are thus eliminated. An ignorance of this frequently leads to the belief that there is nothing materially wrong, when a grave lesion is making rapid strides towards a fatal termination. The presence of this blood debris does not materially affect the specific gravity of the urine. This state of urine is found in many cases of obscure disease, usually considered to be simply hysteria. In some cases the excess of urohæmatin in the urine is so great, that after it has been set free by an acid, and taken up with ether, the ether, after standing, solidifies into a red-currant jelly-like mass, and may actually in some cases be cut with a knife. This symptom is met with in various diseases, especially however, in some cases of chlorosis, and is then of grave import. Our efforts must be directed to restore to the blood as much as possible of the material which is being drained from it. This is best supplied by syrup of phosphate of iron. The preparations of zinc are also useful astringent tonics. (Dr. G. Harley, p. 89.)

VESICAL SOUNDS.—The shank of a vesical sound should be of smaller diameter by several sizes than the curved end, to admit of more ready manipulation; moreover, the comparatively greater weight of the end gives more certainty to both hand and ear. (Prof. Fergusson, p. 164.)

AFFECTIONS OF THE BONES, JOINTS, ETC.

INJURIES OF THE SKULL.—*Trephining.*—To elevate a depressed piece of bone is desirable, but so many cases recover where the bone remains depressed, and so many die where it is elevated by trephining that the remedy has proved, in such cases, hardly an assistance to nature. Out of 35 cases of trephining in the Federal army in six months, twenty-eight died, two remained undecided, and but five had recovered. It cannot be said that the trephine should never be used, but the cases are very exceptional which require it. (Dr. J. Ashhurst, Jun., p. 128.)

WIRE LIGATURES CUT SHORT AND LEFT IN WOUNDS.—When, in cases of amputation, the vessels are secured by wire ligatures it is unnecessary to remove them at all, if cut off close. They will produce no irritation, and the rapid healing of the wound is very much favoured by the avoidance of any disturbance, and of the pain caused by removing ligatures, which is occasionally very severe. The same principle may be applied to ligature of the veins in cases of varicocele; and to

ligature of arteries in cases of aneurism, where pressure has failed, but where it is desirable that a modified current of blood should be permitted to pass through the artery, by partially compressing the main artery by tying the wire loosely and cutting both ends short. (Mr. B. Holt, p. 125.)

AFFECTIONS OF THE SKIN.

ACNE ROSACEA.—*Armoracia.*—Let an infusion of the root of armoracia (horse-radish) be used frequently as a lotion to the parts affected, and let the compound infusion be taken as an internal remedy. Two ounces may be taken as a draught, night and morning, with a little compound spirit of ammonia and syrup of ginger. This treatment frequently proves of great service. (Mr. T. F. Ker, p. 194.)

ALOPECIA.—In this disease, when not senile, the hair follicles are merely in a state of atony and not destroyed. There is frequently some removable cause. When the skin has not had free power of secretion, from the too abundant use of pomades, &c., the head should be well washed with the yolk of egg, or borax in almond emulsion, afterwards carefully rinsing with warm water, and to apply the following lotion: Spirit. ammon. aromat., tinct. canth., glycerine, aa. ℥jss., aquæ rosæ, ℥vi. M. In *syphilitic* alopecia the best internal treatment is the biniodide of mercury. In cases arising from chronic skin disease our first effort must be to cure the local disease, afterwards using stimulating applications if necessary. (Dr. J. M. Frodsham, p. 186.)

Alopecia Areata.—Carbolic Acid.—In a case related by Dr. Watson of Edinburgh, carbolic acid dissolved in glycerine, in the proportion of one drachm of the acid to three ounces of glycerine, was used with very good effect. All crusts were carefully removed prior to its use. The lotion was applied night and morning, and, to prevent it evaporating, a cap made of oil-silk was constantly worn. The head was washed night and morning before the lotion was applied, with black soap and water. Carbolic acid may be dissolved in acetic acid, and then forms an excellent application in some of these skin affections. (Dr. J. Watson, p. 188.)

HOSPITAL GANGRENE.—Nitric acid must be immediately applied to a wound having a tendency to hospital gangrene, or water must be used very copiously; the first to destroy the whole secreting surface, in the hope that on the separation of the eschar a healthy wound will result, the latter that the secretion from the poisoned wound may be diluted and quickly

removed. The acid must be applied very thoroughly, and if the integument is undermined at any point, the acid must be there inserted. Chloroform may be administered. The second plan of treatment may be carried out by placing the part in a warm bath, the water of which should be often changed, and should be medicated with some disinfecting fluid. In all cases, where practicable, a change of air is the grand desideratum; removal from one room to another, or from a town to the country. The actual cautery has been applied to a gangrenous stump most successfully by Mr. Curling. (Mr. C. F. Maunder, p. 209.)

ITCH.—Of 37,429 persons treated in the following way at the Hospital St. Louis, only 535 required a second application. For half-an-hour rub the whole body except the head with black soap, and let the patient continue the process for half-an hour afterwards in a tepid bath. On leaving the bath, he must be submitted to a rapid and general friction with the following ointment: Lard 64, sulphur 20, subcarbonate of potass, and water of each 8 parts. The patient must then dress himself without wiping off the ointment, as the contact of this is necessary for the destruction of any remaining acari, and of any that might remain in the garments. (Dr. Hardy, p. 193.)

Fumigation by sulphur has been much employed in Paris lately, and with great success. Throw half-an-ounce of sulphur, mixed with two drachms of nitre, into a warming pan of hot coals, which must be employed in the usual manner of warming a bed. The patient must then strip naked and get under the clothes, which are to be closely tucked round his neck and shoulders, so as to prevent as much as possible the escape of gas. The worst cases may be cured in this way without any inconvenience to the patient. (Dr. Gale, p. 194.)

PORRIGO.—The most successful plan of treatment is to give cod-liver oil and iodide of potassium internally, and to apply externally sulphur ointment. This latter is the "basis" of successful treatment. All scales must be carefully removed before the ointment is employed. The disease occurs among the lower orders, and especially in delicate and strumous subjects, and is eminently contagious. (Dr. W. Tilbury Fox, p. 190.)

PRURIGO.—*Its Diagnosis from Itch.*—To distinguish prurigo from scabies, remember that the former is papular, and frequents the back of the limbs and posterior surface of the trunk; the latter is vesicular, and frequent the anterior surfaces. In chronic prurigo, some papules may present at their

summit a *small* vesicle; but this must not mislead, nor must the fact that the vesicles of itch rest sometimes on a papuliform induration. (Dr. Duchesne-Duparc, p. 191.)

The best topical application is tar, in suspension or incorporated with lard and united with opium. The following is a good formula: Tar 60 grains, gummy extract of opium 15 grains, lard one ounce. M. Cazenave, considering prurigo as a neuralgia of the papillæ of the skin, suggested the usefulness of aconite, and it is found to be of great service in allaying the itching. It may be applied externally and administered internally. (Dr. Duchesne-Duparc, p. 192.)

[We ourselves always give alkalies freely internally, and find no difficulty in curing recent cases by this treatment alone; if of long standing, we also employ alkaline baths and friction with some alkaline ointment. We cannot recollect any case in which this treatment has failed.—EDITORS.]

VENEREAL AFFECTIONS.

BUBO.—When pus has formed in a bubo, the best plan is to make a small but dependant opening, the moment its presence is detected. The practice of waiting until more complete suppuration has occurred, as well as that of free incisions, are both bad, for in the former case the skin and fascia overlying the gland are usually destroyed and slough away, producing a deep and tedious sore, and in the latter case the incisions do not heal, and leave unsightly and indelible scars. A real chancrous bubo, showing no tendency to heal, should be dressed with a strong solution of nitrate of silver, sulphate of copper, black-wash, or some similar application, or they should be injected into the interior of the bubo. (Dr. Veale, p. 278.)

CHANCRE.—In the treatment of soft chancre the three following rules may be regarded as absolute:—1st. That every non-indurated chancre should be thoroughly cauterized if the ulceration be progressive or stationary. 2nd. That the escharotic employed should never be of less strength than the fuming nitric acid. 3rd. That every suspicious excoriation should be treated as a chancre. (Dr. Veale, p. 277.)

Indurated Chancre.—Excision.—Until an indurated chancre has been followed by enlargement of the lymphatics in the neighbourhood, it is both justifiable and expedient to obtain the destruction of the part affected by it, for which purpose excision is especially applicable when the sore happens to be

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withdraw one needle, the other being left to steady the eye with, and introduce the suction-curette (procurable from Weiss, see woodcut at p. 241), first puncturing the cornea with a needle the exact size of the curette. The mouth of the operator must then be applied to the small india-rubber tube connected with the instrument, and the whole of the contents of the cataract may be withdrawn from the eye. In the majority of cases recovery is most speedy and perfect, the operation being followed by little or no irritation of the eye. (Mr. T. Pridgin Teale, Junr., p. 238.)

GLAUCOMA.—Great caution must be exercised in applying belladonna or atropia to the eye in glaucoma, for the peculiar effect of the drug on the arterial capillaries of the eye deteriorates the visual power considerably. Belladonna diminishes the calibre of the arteries by producing contraction of the middle or muscular coat. The fundamental morbid condition of the eye in glaucoma appears to be great venous congestion, with diminished calibre of the arterial capillaries. (Mr. T. Wharton Jones, p. 262.)

GRANULAR CONJUNCTIVA AND PANNUS.—*Inoculation with Pus.* —In cases of granular conjunctiva and pannus the treatment by means of inoculation with purulent matter is still pursued with success. The quality of pus varies very much, some producing a mild inflammation, others a very violent form. The pus from the eye of a child suffering from purulent ophthalmia of a mild type, is frequently most suitable. When inflammation has resulted from the inoculation, the discharge must be washed away from the eyelids every hour with tepid water, if the pain is very severe, but only twice a day if there is very little pain. The result in severe cases of pannus or granulations is unsatisfactory if the inflammation has not been sufficiently severe, or has been checked too soon, for it is a *sine quâ non* that the granulations be entirely destroyed and the conjunctiva smooth. Minute red granulations, giving the palpebral conjunctiva a red velvety appearance, must not be treated by inoculation. The large red, or gray red, or gray or yellow and opaque granulations, are those which will disappear when inoculated. (Mr. C. Bader, p. 220.)

The greatest success results in cases where the lids are not only severely granular, but the whole cornea is completely vascular, semi-opaque, and the pupil scarcely visible, where in fact there is little to lose and all to gain. Where the cornea has become a pannus, and but little more than perception of light remains, this plan of treatment is especially applicable. (Mr. G. Lawson, p. 229.)

IRITIS.—We must, from the very first, keep the pupil as much as possible out of harm's way. The fiftieth part of a grain of a very finely levigated powder of sulphate of atropine applied to the conjunctiva of the lower lid will usually effect this at once, and if occasionally repeated will maintain this condition.. When this is effected our constitutional remedies are of use, but not until then. A solution of atropine of the strength of two grains to the ounce is usually sufficient for dilatation of the pupil. If a solution of the alkaloid is preferred to the powder. (Mr. Jabez Hogg, p. 236.)

NUCLEAR CATARACT.—*Iridesis.*—In cases of congenital cataract where the nucleus only of the lens is opaque, the margin being perfectly transparent, the most successful practice that can be adopted is to make an artificial pupil by iridesis, for the healthy part of the lens still remains, and consequently sight is pretty good. There must, of course, be sufficient clear margin of transparent lens to ensure an artificial pulpit at least equal in its area to the average size of the natural pupil. By performing two operations on each eye in such a way that by the second operation the pupil assumes a crescentic form with the two cornua cut off, the pupil is made of the proper size to admit the light freely. (Mr. G. Critchett, p. 250.)

STRABISMUS.—Squint may be cured without any operation at all, by inducing by optical means an increased action of the enfeebled rectus externus. A prismatically-ground spectacle glass, with the base turned in the direction opposite to that of the squint, restores binocular vision, the eye however remaining squinting; by, however, making the prism a little too weak, the external rectus is induced to contract, to avoid the slightly-double image. At first the effort cannot be long sustained, but by using the glasses at intervals only during the day, and gradually lengthening the period of exercise, the patient will soon be able to wear them much longer at a time, and fuse the images more thoroughly and with less effort. As the muscle becomes stronger, the prism may be decreased in strength, and the squint gradually entirely removed. In a case related the cure occupied eight weeks. (Mr. Ernest Hart, p. 217.)

Moorfields Operation.—The steps of the operation for strabismus as practised at Moorfields are as follows: The spring speculum having been applied, let an assistant seize the conjunctiva with a pair of rats-toothed forceps close to the outer margin of the cornea, and turn the cornea outwards. Let the operator seize a fold of the conjunctiva with a similar forceps, nearly midway between the inner edge of the cornea and the

caruncle, just over the lower border of the rectus internus, and snip it through with slender blunt-pointed scissors, so as to make a small horizontal incision. The fascia, which this incision exposes, is in turn snipt through. Next a blunt hook, with rather a large curve, is passed through the wound beneath the tendon, which is put on the stretch by slightly raising the hook, and divided with small snips of the scissors between the hook and the sclerotic. This operation is slightly modified by Von Graefe, see page 216. (Mr. J. W. Hulke, p. 215.)

Critchett's Operation.—Divide the conjunctiva near the inner border of the cornea, and dissect it back in a flap, together with the fascia and the tendon of the rectus internus, which must be divided from its acquired faulty place of insertion. Close the wound at the inner side of the eye with fine silk stitches, after removing so much of the free edge of the conjunctival flap that the closure of the wound draws the sunken caruncle forwards, and gives the cornea a slight convergence. The divided tendon which has been brought forward with the fascia and conjunctiva, unites itself to the globe at an anterior point, nearer the situation of its normal insertion. Slight convergence is always desirable at first, for the cicatrix always yields a little. (Mr. J. W. Hulke, Mr. Critchett, p. 216.)

Strumous Ophthalmia.—The disease known as strumous ophthalmia is not really an essentially scrofulous disease, but is an affection of simple character, depending upon disorder of the digestive organs. There is usually more or less remittent fever, worse towards evening, and the organs of digestion and the secretions are very unhealthy. Tonics, and the local application of nitrate of silver, are not followed by much success. Tartarized antimony should be given in minute doses at frequent intervals, until free vomiting is excited; and this in all cases, however attenuated or however stout the child may appear, the object being to relieve the stomach of its offensive contents, and to render its secretions more natural, as well as those of the other secreting organs. Four grains should be dissolved in eight ounces of water, and for a child under three years of age, two teaspoonfuls should be given every ten minutes until vomiting ensues. This treatment should be repeated daily until the intolerance of light begins to diminish, which usually happens in two or three days. The emetic may then be discontinued, and a powder of calomel and rhubarb given every night or every alternate night, but if there is great debility it is better to omit the calomel. (Mr. H. Hancock, Dr. W. Price, pp. 223, 228.)

MIDWIFERY, AND THE DISEASES OF WOMEN, ETC.

ALBUMINURIA IN CHILDREN.—The only form of disease of the kidney which occurs during childhood is increased vascularity or catarrh of the kidney, leading to increased secretion of epithelium, to such an extent as to choke up the tubes, and produce a marked mottled appearance on the exterior of the organ. The aim of treatment must be to keep the tubes clear; this done, the disorder will generally right itself. We must pass as much *water* as possible through the organ, which will wash the tubes without producing irritation. The diet must be fluid, but nutritious, and from two to four pints of spring water administered in the twenty-four hours. When the active symptoms have disappeared iron is required (Dr. W. H. Dickinson, p. 385.)

AMENORRHŒA AND DYSMENORRHŒA.—*Apiol.*—Apiol, the active principle of parsley, is a nervine tonic, and is therefore of use in those cases only characterised by depressed nervous power. In cases where there is some derangement of a vital element, or where there is plethora or anæmia, it is useless, and treatment must be directed to remove these conditions. It is peculiarly of use in uterine affections. As a neurotonic it supplies to the nervous system the energy it has lost, and is the best emmenagogue for cases of amenorrhœa depending on this loss of nerve power. It must be administered in doses of two capsules daily. (Dr. Corlieu, p. 370.)

DEFICIENT ACTION OF THE UTERUS.—*Borax.*—Two scruples of borax, dissolved in a little water, when the uterus is disposed to act, produces constant and unremitting contraction of that organ, which speedily puts an end to the labour. It has the advantage over ergot of seldom producing sickness. (Mr. E. H. Moore, p. 323.)

DIAGNOSIS OF UTERINE AND OVARIAN TUMOURS.—It is very difficult, perhaps impossible, to distinguish between a multilocular ovarian cyst and a fibro-cystic uterine tumour, when the cysts are large and the connection with the rest of the uterus elongated, the peduncles in these uterine tumours being often two to four inches in length. There is usually more or less hemorrhage in the case of uterine tumour in the early part of the case, whilst in ovarian disease menstruation is, as a rule, scanty, and hemorrhage rare. Of course, when there is no peduncle to a uterine tumour, the uterus will move along with the tumour. Not a few of these tumours have been removed by abdominal section, some in mistake for ovarian cysts, others after a correct diagnosis. But such tumours are better not to be interfered with by operation, seeing that they

differ most essentially from ovarian tumours in the prospect of life to the patient, for they usually cease to cause hemorrhage and to grow.' (Mr. Spencer Wells, and Dr. W. T. Gairdner, p. 347.)

DIET OF CHILD-BED.—The system of low diet usually pursued is entirely wrong. There is great nervous exhaustion, and frequently considerable loss of blood. The rational treatment is a restorative one, it involves rest, and if possible, sleep. Animal food is especially called for, combined or not according to circumstances, with liquid containing alcohol. (Dr. Graily Hewitt, p. 324.)

DISTENDED AND PAINFUL BREASTS.—In cases of distended and painful breasts, a good application is the following, spread on linen: Cer. flav., ol. olivæ aa. ℥ij.; glycerine ℥ij.; emp. resinæ ℥ss.; emp. belladonnæ ℥ss. Misce. ft. emplast. (Dr. Hardy, p. 369.)

FIBROUS TUMOUR OF THE UTERUS.—*Incision of the Os and Cervix.*—To destroy these growths by breaking up their structure proceed as follows. Divide the mouth and neck of the uterus up to the inner mouth by the hysterotome; and when the cut surfaces have healed gouge the tumour so as to break up the capsule. Hemorrhage invariably ceases after the mouth and neck of the uterus is incised. To incise the mouth and neck of the uterus, press the perineum down with the bent speculum, then seize the superior lip of the os uteri, and hold it firm, an assistant steadying the speculum. In this way a perfect view of the os and cervix may be obtained. Having determined to what extent to incise, introduce Simpson's hysterotome within the os and cervix, and cut first on one side and then on the other. Then plug the cervix and the vagina most thoroughly and firmly with lint soaked in sweet oil, fixing the whole with cotton wool, so that hemorrhage is prevented, and air excluded from the cut surfaces and the uterus. (Mr. I. Baker Brown, p. 314.)

Enucleation of.—The tumour must be well pressed down into the pelvis by an assistant. The first incisions must be very free and pass deeply down into the tumour, thus not only completely dividing the capsule, but facilitating its bisection should that afterwards be found requisite. The opened capsule must be separated by the fingers, or, if needful, by blunt-pointed scissors, the finger being used as a director. Strong and large vulsella, with midwifery forceps, should be at hand, to be used for traction if necessary. The grand object is to draw down, after separation of the tumour, the uterus inverted with the tumour to the external parts, or as near as

possible to them, which facilitates the operation. After separating the final attachments of the uterine tumour, carefully avoiding cutting through an inverted pouch of peritoneum, the uterus must be returned. (Mr. Hutchinson, p. 337.)

Enucleation by the induction of Gangrene.—It is now well established that free incisions in these tumours suffice for their cure. Sloughing and disintegration of the tumour ensue, it diminishes in size, and finally disappears. When death ensues from this treatment it is always from absorption of the putrid matter, hence the absolute necessity of very frequent injections and washings with disinfectants, and obviating the production and long contiguity with ulcerated surfaces of effete and putrid matters. (Dr. C. H. F. Routh, p. 341.)

Inversion of the uterus certainly renders the operation easier, but it also increases the fatality of it by inducing inflammation in and about the peritoneum around the organ. In some cases fatal from peritonitis the peritoneum was found quite uninjured, and traction alone can be assigned as the cause of the inflammation. It should therefore be avoided if possible. (Dr. C. H. F. Routh, p. 339.)

Uterine Hemorrhage from Fibrous Tumour.—In cases of severe hemorrhage from fibrous tumour of the uterus, if the os and cervix be freely incised at each side the bleeding will cease. This is far more effectual than any other treatment which can be adopted. (Mr. I. Baker Brown, p. 315.)

Incontinence of Urine in Boys.—Let the bladder be emptied the last thing at night, and then a common elastic india-rubber ring applied on the root of the penis. This may be removed in the morning. If the bladder is irritable during the day, it may be kept applied continually. This is, of course, useless in cases depending on stone in the bladder, or on worms in the intestines. (Mr. J. Adams, p. 389.)

Mammary Abscess.—*Iodide of Potassium.*—The external application of belladonna is not always so successful as an anti-lactescent as might be wished. Iodide of potassium in doses of three grains every four hours, with a little Dover's powder at bed-time, will frequently succeed in arresting the secretion of milk in cases of threatened mammary abscess, better than belladonna does. (Dr. F. H. Morris, p. 329.)

Nervous Headaches.—*Turpentine.*—Nervous headaches in women must not be confounded with neuralgia, or even with hemicrania. It may last for months without intermission. One of the best remedies is essence of turpentine. It should be given in capsules, at meal times, each capsule containing eight drops of the essence. (Prof. Teissier, p. 373.)

OVARIAN DROPSY AND ASCITES.—*Diagnosis of.*—In ascites the flanks and sides protrude most, whilst in ovarian disease the protrusion is generally most evident in front, less so at the sides, and often more so at one side than the other. As the fluid of ascites gravitates much more readily than a cyst can move, the form of the abdomen is much more affected by change of position in ascites than in ovarian disease. The umbilicus, though it may be raised to a level with the skin of the abdomen, is never prominent in ovarian disease, as it very often is in ascites, or when ascitic fluid surrounds an ovarian tumour. In ascites the greatest circular measurement is at the level of the umbilicus; in ovarian dropsy it is often some inches below that level. The other means of diagnosis, more evident even than these, are well known. (Mr. T. Spencer Wells, p. 362.)

Injection of Iodine.—There is not nearly so much danger to be apprehended from tapping and injecting ovarian cysts with tincture of iodine as is generally supposed. The danger is not increased by using large quantities of the tincture. Four ounces of the strongest tincture of iodine of the Edinburgh pharmacopœia is the average quantity to be used, and after the parietes of the abdomen have been pressed to secure the contact with the fluid of every portion of the interior part of the sac, the mouth of the canula should be opened, and as much of the fluid as will, allowed to escape. Many cases have proved fatal from the trocar having been allowed to slip out of the walls of the sac, and the iodine tincture having escaped into the peritoneal cavity. The danger from absorption of iodine can only arise from carelessness by the slipping of the canula out of the sac walls, for when confined to the interior of the sac there is no absorption into the system. Injection of iodine is only suitable for cases where there is positive evidence of one large cyst, entirely free from any solid deposits; and in proper cases when carefully selected it may succeed, and is at any rate well worth trial, as extirpation may thereby be avoided. (Dr. C. Clay, p. 358.)

OVARIOTOMY.—It is much better in tying the pedicle to pierce it and pass ligatures round each half, and tie them separately; the ligatures are thus thrown off much sooner, and the recovery hastened. The system does not rally well towards improvement until the suppuration of the pedicle has ceased, and the ligature is thrown off. (Dr. C. Clay, p. 360.)

Sutures best adapted to Ovariotomy.—After trying extensively every kind of suture, the author has come to the conclusion that nothing answers so well as fine, strong, pure silk. It is easily applied, easily removed, and, if not drawn too tight

nor left too long, causes no sloughing of the enclosed circle of tissue. The sutures should not be left more than forty-eight hours. He considers them preferable to any kind of wire suture. (Mr. T. Spencer Wells, p. 368.)

POLYPUS OF THE RECTUM IN CHILDREN.—There is always hemorrhage, more or less, when the child has a stool, and a red tumour will then be observable at the orifice of the anus, which returns after the evacuation. It is usually mistaken by the friends for prolapsus, or for a hemorrhoid (which never occurs in infants.) If followed by the finger into the rectum there cannot be any mistake, for the pedicle will be easily felt. It must be seized with forceps, when protruded during an evacuation, and ligatured around the peduncle, the thread being allowed to return into the rectum with the tumour. It will come away in a day or two. (M. Guersant, p. 383.)

PUERPERAL DISEASES.—Puerperal peritonitis, puerperal fever, and phlegmasia dolens, are not owing, as is thought by many, to inflammation in the neighbourhood of the uterus, but to the introduction of septic matter into the uterine veins. This is usually owing to a relaxed state of the uterus. Perfect contraction of the womb is almost a complete safeguard against these diseases. None of these diseases require an antiphlogistic plan of treatment. (Dr. Graily Hewitt, p. 326.)

RETROFLEXION OF THE UTERUS.—*Treatment by Operation.*—The muscular tissue of the uterus is not passive in retroflexion, there is probably active contraction at the point of flexion, and this is proved by the success attending the division of the os and cervix. Having fixed the uterus, introduce the hysterotome within the os and cervix, and divide the parts freely up to, but not through the internal os. Without adopting any other means, excepting rest, the uterus will resume its normal form. The incisions and vagina must be well plugged with oiled lint to prevent hemorrhage. The ordinary treatment for retroflexion, viz., rest and the use of the stem pessary, is very unsatisfactory, and does not *cure* the case, being only a palliative. (Mr. I. Baker Brown, p. 351.)

SEA-TANGLE TENTS.—The opinion of Professor Simpson on these tents, is that they fulfil the indications of a tent so admirably, that he believes they will ultimately replace the sponge and other substances still employed. (p. 354.)

These tents are very liable to slip out, but may be easily held in position by a piece of sponge placed below them, or by a piece of worsted wrapped round the point, until they begin to dilate. (Dr. A. R. Simpson, p. 356.)

TURNING *versus* FORCEPS.—*Disproportion between the Fœtal Head and the Pelvis.*—Supposing equal skill and dexterity be brought to the application of the long forceps as usually is to operation of turning (which is seldom the case), the use of the forceps is the safer and more successful plan. The pressure of the forceps does not appear to exert any injurious effect on the child's head; whereas in extraction after turning, the head and neck are often so twisted in their passage through the pelvis, that life is destroyed. The pressure of the head on the funis is probably often the cause of death, but in many cases the death of the child is more probably dependent on injury to the neck. Taking the general run of cases, however, delivery can be effected more easily by turning than by the application of the forceps, for, apart from the frequently contracted state of the os, there is often great difficulty experienced in applying them, and there is also liability to laceration of the uterus. Turning is an operation comparatively safe in itself, to the mother. (Dr. Graily Hewitt, p. 294.)

UTERINE SOUND WITH MOVABLE HEAD.—In order to obviate the constant bending, which is necessary in the immovable sound to make it tally with the varying obliquity of the uterus in different individuals, the author has introduced a sound with movable head. (See woodcut). The movable part is exactly two and half inches in length, and can be set at any angle by a screw in the handle. The same instrument may be of use in cases of anteversion or retroversion, and to bring on labour in some cases of retroversion of the pregnant uterus. (Dr. J. Lumley Earle, p. 321.)

MISCELLANEA.

ACTION OF SOME SPRING WATER ON LEAD.—It happens occasionally that spring water contains hydrochloric acid. This can only be detected by evaporating at a low temperature. The free acid acts readily on lead, and the water produces symptoms of lead poisoning when drunk. This acid may exist in spite of the presence of earthy carbonates in the soil, and in very considerable amount. (Dr. Henry Osborn, *Medical Times and Gazette, May* 28, 1864, p. 586.)

ACTION OF BROMIDE OF POTASSIUM IN INDUCING SLEEP.—In cases of loss of sleep attended by, or caused by over mental excitement, bromide of potassium is a remedy worth trying. In one such case, after opium and other sedatives had completely failed, twenty-five grains of bromide of potassium, taken three times a day, so quieted the state of nervous excitement that sleep was induced. It should be taken before meals. Other such cases are related, in all of which the nervous ele-

ment preponderated in relative disorders, in fact just such cases as are usually made worse instead of better by opiates. (Dr. Henry Behrend, *Lancet*, *May* 28, 1864, p. 607.)

CHLORODYNE.—*To Prepare.*—Dissolve eight grains of acetate of morphia in ℥ss. chloroform, by the aid of a gentle heat; then mix this with ℥i. of treacle, with the aid of ℥i. of gum water (not adding the whole of the chloroform at first.) Lastly add ℥ii. sulphuric ether, ♏xxiv. Scheele's prussic acid, and ♏iv. ol. menth. pip. The whole will make rather more than an ounce of chlorodyne. (Mr. J. Ashburner, *Lancet*, *June* 11, 1864, p. 688.)

CHLOROFORM.—Free admixture of air with the anæsthetic is of the first importance, and guaranteeing this, any apparatus may be employed. Chloroform should invariably be given slowly, and sudden increase of the strength of the anæsthetic is most dangerous. The occurrence during its administration of sudden pallor or of lividity indicates danger; also flickering of the pulse, or feeble or shallow respiration. If symptoms are urgent, pull forward the tongue, clear the mouth and fauces, dash cold water on the face and chest, and aid the respiratory movements by rhythmical compression of the thorax. In the most threatening cases artificial respiration must be commenced instantly. In cases of fatty, weak, or dilated heart, great caution is required, but valvular disease is of less importance. It should not be used in operations on the eye, but in most other cases, even operations on the mouth, it may be used. (Chloroform Committee of Medico-Chirurgical Society, *Lancet*, *July* 16, 1864, p. 70.)

POISONING FROM BELLADONNA.—After emptying the stomach the best plan of treatment is by small doses of opium combined with stimulants, if much tendency to syncope exits. In a case related, ♏xx. of laudanum were given in brandy. Calabar bean should be used to remove the dilatation of pupil. (Dr. Fraser, *Medical Times and Gazette*, *Oct.* 8, 1864, p. 286.),

SYRUP OF CHLOROFORM.—The following is an excellent form for an anodyne containing chloroform, which will be found to remain combined and to mix readily with either spirit or water. Chloroform, ℥iv.; ether, ℥iss.; oil of peppermint, gtt. viij.; resin of cannabis, gr. xvj.; capsicum, gr. ij. Macerate for two or three days and then filter. Then take of muriate of morphia, gr. xvj.; hydrocyanic acid (Sch.,) ♏xcvj.; perchloric acid, water, aa. ℥ss.; syrup of treacle (or honey) to make in all four ounces. Dissolve the muriate of morphia in about an ounce of syrup, to which has been added the perchloric acid and water, assisting solution by a water bath, and when cold, add the prussic acid. (Mr. T. B. Groves, *Dublin Medical Press*, *July* 8, 1864, p. 612.)

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

1.—ON THE ETIOLOGY OF SCARLET FEVER.

By Dr. CHARLES MURCHISON, Physician to the London Fever Hospital, &c.

[It is, of course, an indisputable fact that scarlet fever depends upon a peculiar poison capable of being communicated by the sick to persons in health. It is, in fact, the very type of what has always been, and still is, regarded as a contagious and infectious malady. The words contagion and contagious are here used in their modern sense, to signify a disease capable of self-propagation, and not to imply the necessity of actual contact. Strictly, a disease which propagates itself *through the atmosphere*, and not by contact, is *infectious*. Scarlet fever is both contagious and infectious.]

The proofs of the contagious character of scarlet fever may be classified as follows:—

1. *It constantly happens that several cases of scarlet fever follow one another in succession in the same house.* Illustrations of this statement must be familiar to every reader, and until scarlet fever can be shown to depend upon some local cause, such facts afford a strong presumption that the disease is propagated from the individuals first infected. The evidence, however, is not crucial; for on the supposition that the disease may have a local origin, the circumstance of a number of individuals being successively attacked in the same house admits of another explanation than that of contagion.

2. *The attendants on the sick, or persons in close communication with them, are more liable to contract the disease than persons equally predisposed residing in the same house, who are not in communication with the sick.* For example, Rilliet and Barthez state that out of 53 children who contracted scarlet fever in the Children's Hospital at Paris, 34 were in wards into which scarlet fever cases were admitted, 14 were in wards in close communication with the preceding, and only 5 were in wards having but slight communication with those first mentioned. Facts of this nature are of almost daily occurrence. They would be even more common but for two reasons: 1st, That a

large proportion of the attendants are protected by a previous attack; and 2nd, That they have usually arrived at an age in which the predisposition to scarlet fever is comparatively small. For these and other reasons to be mentioned hereafter, unprotected children residing in the same house, but having no personal communication with the sick, may be attacked, while the adult attendants escape. But instances of this sort do not invalidate the general law, that the danger is great in proportion to the exposure to the poison.

3. *Scarlet fever is often imported by infected persons into localities previously free from it.* For example, it is often observed that when scarlet fever breaks out in a large school, and when the school in consequence is broken up, the disease is simultaneously imported into localities widely distant, and where the disease was before unknown. Facts of this sort are of constant occurrence, and afford unquestionable proof of the contagious character of the disease. They admit of no other explanation.

4. *Certain localities, having little or no communication with others in the same part of the world where scarlet fever prevails, are known to be remarkably exempt from it.* A return has just been published, compiled from the records in the Registrar-General's office, showing the causes of death in the decennial period 1851–60 in each of the 623 registration districts of England and Wales. The Scilly Isles, containing a population of about 2500, constitute the only district out of the 623 in which there has not been a single death from scarlet fever (measles, or small-pox) during the ten years in question. This fact requires no comment; of itself it speaks volumes.

5. *The contagious nature of scarlet fever is indicated by the success of measures taken to prevent its propagation.* Patients very frequently contracted scarlet fever in the London Fever Hospital when it was the practice to treat cases of that disease in the same wards with other patients; but during the last two years, although the number of scarlet fever admissions has been far greater than in any previous years, such occurrences have been almost unknown, because the scarlet fever cases have been isolated in distinct wards from the other patients. I have often had occasion to observe that when scarlet fever has broken out in a school, or in a large family of unprotected children, its spread has been arrested by the early isolation of the sick. Occasionally the disease continues to spread, in consequence of the isolation not having been sufficiently prompt, or because others than the individual first attacked have been exposed to the original source of infection.

6, and lastly. *The contagious character of scarlet fever is demonstrated by the fact that inoculation with the poison taken*

from the sick is capable of producing the disease. The evidence on this head is sufficient to leave little doubt about the matter, but the subject requires further investigation. Scarlet fever is said to have been successfully inoculated in Germany by Stoll, but I have been unable to find any details of his experiments. Speaking of the vesicles occasionally observed in the eruption of scarlet fever, Dr. Robert Williams observes: "This serum has, by Sir Busick Harwood and other physicians, been used to inoculate healthy children, in the hope that by this method a milder disease, as in the small-pox, might be produced. Scarlet fever has in many instances resulted from this experiment, but the disease has been as formidable as that which occurs spontaneously, and consequently this practice has of late years not been repeated." Although this statement and opinion have been adopted by many subsequent writers, the only account of Dr. Harwood's observations which I have been able to discover is contained in Dr. Erasmus Darwin's "Zoonomia," and has reference to a patient suffering from scarlet fever with a vesicular eruption, discharging a quantity of serous fluid. This patient on a Wednesday evening become very delirious, and could with difficulty be kept in bed. He was attended by a poor man who had cut his hand with a broken bottle. The wounded hand was repeatedly brought in contact with the patient's skin in the efforts to restrain his movements. The next day the man's hand was much inflamed and his arm swollen. On the following Monday he was seized with scarlet fever, of which he died on the Wednesday morning. It is to be observed, however, that this man had also been exposed to the poison in the ordinary way. Thirty years ago, M. Miquel d'Amboise, in a communication addressed to the French Academy of Medicine, stated that he had inoculated a number of unprotected children with fluid taken from the vesicles of scarlet fever. At the end of thirty hours a red areola, resembling exactly the eruption of scarlatina, appeared around the punctures. For three days this redness went on increasing, but it disappeared on the fifth day. The inflammation was not traumatic, for a second inoculation in the same individual failed to take effect. The operation was said to confer complete immunity from subsequent attacks of scarlet fever; two children, aged one year and a-half and nine years respectively, who never before had the disease in a regular form, were not attacked, although placed in the same bed as a patient suffering from the disease. Rostan refers to cases where the eruption of scarlet fever appeared seven days after inoculation; and Copland had a patient with a severe attack of scarlet fever "produced by the contact of a small portion of the discharge from the throat of a person with malignant anginous scarlatina."

In the face of such evidence, it must be admitted that scarlet fever can be propagated from the sick to persons in health by means of a specific poison. The laws which appear to regulate the action of this poison are worthy of study.

1. *Mode of transmission of the poison.*—The experiments and observations mentioned above leave little doubt that the poison is contained in the secretions of the skin and throat. It is highly probable that the other secretions are also impregnated with it, and particularly the breath and the glairy fluid which in severe cases is discharged from the nostrils; but this is an opinion founded on no positive data. Opposite statements are made by different writers as to the presence of the poison in the blood. On the one hand, scarlet fever is said to result from inoculation with the blood of infected persons; on the other, it is believed that the results of such inoculation are negative. The opinion that the poison circulates in the blood is supported by the fact that children have been born suffering from scarlet fever. The poison is conveyed through the atmosphere or by means of clothing or other articles, and enters the body of the recipient through the lungs or skin, or, after being swallowed with the saliva, through the mucous membrane of the digestive canal. The possibility of the poison entering by the skin admits, as we have seen, of demonstration; and when a healthy person suddenly sickens with scarlet fever, after inhaling the breath of an infected individual, the conclusion seems inevitable that the poison has entered by the respiratory mucous membrane.

2. *The infecting distance.*—It is difficult to speculate on the distance to which the poison of scarlet fever may be transmitted through the atmosphere; but the most careful observers agree in making it extremely short. According to the late Dr. Haygarth, of Chester, who was the first to investigate this subject, the infecting distance of small-pox does not exceed half a yard. That of scarlet fever is probably not greater. Dr. Darwin was, I believe, right in maintaining that the poison of scarlet fever is much less volatile than that of measles. From the supposed shortness of the infecting distance of scarlet fever, it would be reasonable to infer that when the disease appeared in a large family or establishment of children, its spread might be at once arrested by the prompt isolation in separate apartments of the persons first attacked. But, unfortunately, a contrary result has too often been observed. Dr. R. Williams tells us that, in his day, the London Foundling Hospital presented excellent opportunities for isolating patients attacked with scarlet fever, but that the spread of the disease was not arrested when once it had broken out amongst the children. Again, at Ackworth School, the spread of the disease could not be prevented,

although the infirmary was 250 yards distant from the school: 184 out of 216 scholars were attacked. A similar observation was made at Donaldson's Hospital, Edinburgh in 1852; and, in fact, there are few practitioners who have not met with instances of a like nature. The spread of the disease, however, under such circumstances, is not due to the distance interposed between the sick and the healthy children being insufficient. It is more probably owing to the healthy children imbibing the poison before the removal of those who are actually sick; and still more to the circumstance that the poison can be transmitted by means of fomites.

3. *Fomites.*—The opinion has long existed that the poison of scarlet fever can attach itself to clothing, bedding, and furniture; and that the disease can be transmitted by a third person who is not himself attacked. The evidence in support of this view appears to be insurmountable. Dr. Willan's great experience led him to state "that a nurse having received on her clothes or pocket-handkerchief the vapour from the lungs, the phlegm from the throat, or the discharge from the nostrils of a patient labouring under scarlet fever, would infect any child predisposed to the disease whom she attended or caressed." Dr. Sims relates several instances of midwives, in Aberdeenshire who, after nursing patients in scarlet fever, carried the disease to women whom they attended in labour. Many medical men have narrated to me circumstances which made it clear to my mind that they have been the means of transmitting the disease to their puerperal patients; and, indeed, the belief in the possibility of such an occurrence is so universal that not a few practitioners of midwifery decline to attend cases of scarlet fever. Scarlet fever appeared twice within three years in the family of a medical friend of mine. On both occasions its origin could only be accounted for by the circumstance that the father was in attendance on cases of scarlet fever, although he himself exhibited no symptoms of the disease. I have met with several well-authenticated instances in which the poison of scarlet fever appeared to be transmitted to a long distance in a letter or a lock of hair. Dr. Mason Good records a case where the poison was imported from England into a family in Dublin by means of a box of toys. A remarkable instance is related by Dr. Richardson, where the poison was transmitted from an infected family to a house many miles distant by means of a letter. The letter on arrival was seized by a child, and conveyed by her to her mother. Both were susceptible, both contracted the disease, and both died of it.

Not only may the poison attach itself to surrounding objects, but its activity under such circumstances exhibits a durability truly surprising. In the course of practice I have repeatedly

found scarlet fever re-appear in a family immediately after their return to their infected home, although several months had elapsed since the first outbreak, and the ordinary cleansing and disinfecting measures had been resorted to. In one instance—that of a medical man's family—the disease recurred this way twice in succession, the family having absented themselves on both occasions for upwards of two months after the recovery of the sick children. Benedict cites a case where several children were seized with the disease immediately after their return to a room in which a death from scarlet fever had occurred two months before, and which, in the interval, had been cleaned with all the care imaginable. Dr. Elliotson mentions an instance where a patient with scarlet fever was admitted into a ward of St. Thomas's Hospital, and for nearly two years afterwards children and young men placed in the same ward continually took the fever, though the ward was thoroughly whitewashed and cleaned once a year. An impressive instance of the same nature is narrated by Dr. Richardson. A man and his wife, with four children, inhabited a country cottage. One of the children was seized with a malignant scarlet fever, and died. The three remaining children were removed at once to a village several miles distant; but after some weeks one of them was permitted to return home. Within twenty-four hours this child was seized with the disorder, and died with equal rapidity to the first. The cottage was now thoroughly cleansed, the walls lime-washed, and every article of clothing washed or destroyed. After four months a third child was brought home, who also sickened with scarlet fever within twenty-four hours and died. It was believed that the poison was retained in the thatch, which extended down close to the children's beds. Lastly, Hildenbrand, no mean authority on the etiology of fevers, states that after travelling from Vienna into Podolia, he put on a black coat which he had last worn while attending upon a scarlet fever patient a year and a half before. He was at once seized with scarlet fever, which spread from him through the province, where it was before unknown A consideration of such facts readily explains why it was that in a recent outbreak of scarlet fever at a fashionable watering-place, the disease was confined to the visitors residing in lodging-houses, while the residents for the most part escaped.

4. *Latent period.*—It is a point of no small importance to fix with accuracy the latent period of the several infectious diseases. That of small-pox has been most studied, and is found to be subject to but little variation. Advantage is taken of this knowledge in the practice of vaccination. The development of the areola which is necessary for the protective effect of vaccination occupies nine days; but as the latent period of

small-pox is twelve or fourteen days, it follows that, if a person exposed to the poison of small-pox be successfully vaccinated *at once*, he has time to escape.

The latent period of scarlet fever appears to be shorter than that of the other infectious diseases. Most observers have agreed in fixing it at between two and seven days, as follows: Dr. Binns, two days; Withering, three or four days; Bateman, three to five days; Heberden, Gendron, and Frank, four days; Cazenave and Schedel, three to six days; Dr. Watson, four to six days; Willan, never more than six days; Guersant and Blache, two to seven days; Dr. Copland, two to eight days. The writers now cited, however, do not state the facts on which their opinion is founded. In the cases alluded to by Rostan, where the poison was introduced by inoculation, seven days are said to have elapsed before the appearance of the eruption. It must be remembered, however, that when small-pox is inoculated, the latent period (seven days) is not the same as under ordinary circumstances (twelve days). A few cases have been recorded in which the latent period has been said to extend to three or four weeks, but it may be doubted if some of the cases referred to were really examples of scarlet fever, and in others, if the poison had not been lurking in the clothes rather than in the bodies of the individuals who were subsequently attacked.

In some of the cases where I have succeeded in ascertaining the latent period of scarlet fever, its duration has been shorter than might be inferred from any of the authors cited above. Considering the difficulty of collecting information on the subject, and the fact that cases suitable for the investigation rarely present themselves, the details of my observations appear to me worthy of being recorded.

In the only case where Professor Trousseau has been able to trace the period of incubation of scarlet fever, it did not exceed twenty-four hours. The case is remarkable. An English gentleman with his daughter was returning from Pau to London, and was joined at Paris by another daughter who came direct from London. Scarlet fever was prevalent in London, but there was not a case of it at Pau. The second daughter was seized with scarlet fever in crossing the Channel, and joined her relatives in Paris seven or eight hours later. She occupied the same room in the hotel as her sister, who was also attacked within twenty-four hours. Dr. Richardson relates that once when he was attacked, the effect of the poison was instantaneous. He had applied his ear to the chest of a patient suffering from scarlet fever, and was conscious of a peculiar odour emitted by the patient. He immediately felt nauseated and chilly, and from that moment he was able to date the commencement of his illness.

It follows from the evidence now adduced, that the latent period of scarlet fever varies from a few minutes to five days and that it rarely, if ever, exceeds six days.—*Lancet, Aug.* 13, 1864, *p.* 175.

2.—THE INFLUENCE OF AGE ON THE LIABILITY TO SCARLET FEVER.

By Dr. CHARLES MURCHISON, Physician to the London Fever Hospital, &c.

Scarlet fever is most common in the second, third, fourth, and fifth years of life, and after ten years its frequency rapidly declines. From an analysis of the returns of the Registrar-General, extending over ten years, it appears that for every 100,000 children under five years of age, in England and Wales, 419 die annually of scarlet fever. It has been alleged that childhood does not predispose to scarlet fever, but that adults merely escape in consequence of being protected by a previous attack; but the mere fact of such large numbers of infants being attacked shows a remarkable aptitude for the disease in early life (not observed in small-pox or typhus), while if we estimate the mortality of scarlet fever at only six per cent., the number of persons annually attacked in England and Wales is considerably less than one-half of the number of births so that a large proportion of the adult population must be unprotected. Daily experience shows that unprotected adults escape in families where all the children are attacked.

The above results show how erroneous is the opinion originally expressed by Withering, and still by many believed to be true, that scarlet fever does not often attack infants at the breast or under two years of age. No fewer than 30,974 (or more than one-fifth of the entire number) deaths from scarlatina are noted as occurring under two years of age. The number of deaths, however, in the first year of life is less than one-half of that in the second, and constitutes less than one-ninetieth of the entire mortality, whereas the deaths from scarlatina in the second year of life amount to one-fifteenth of the entire mortality.

Examples of scarlet fever in the fœtus have been recorded on good authority, although it might be sometimes difficult to distinguish a scarlet rash from the redness natural to newly-born infants. On the 28th of April, 1839, the youngest son of the late Dr. George Gregory was born, "evidently suffering under some form of fever. The throat was affected on the following day, obviously from angina maligna. Eruption was never developed. The child drooped, and died on the 1st of May."

On two occasions I have known females, during an attack of scarlet fever, delivered of living and healthy children.

Although scarlet fever is a rare disease after forty years of age, instances are not wanting of its occurrence at an advanced age. Out of 2402 cases admitted into the London Fever Hospital during twenty years, four were above fifty, and one above sixty. Four fatal cases are reported as having occurred in persons above eighty-five years.—*Lancet, June* 18, 1864, *p.* 696.

3.—ON THE CONDITION OF THE STOMACH AND INTESTINES IN SCARLATINA.

By Dr. SAMUEL FENWICK, late Lecturer on Pathological Anatomy at the Newcastle-on-Tyne College of Medicine, in connexion with the University of Durham.

The object of this paper is to prove the following propositions :—

1st. That the mucous membrane of the œsophagus, stomach, and intestines is inflamed in scarlatina.

2nd. That desquamation of the epithelium of these parts takes place.

3rd. That notwithstanding the anatomical changes in the mucous membrane of the stomach, the formation of pepsine is not prevented.

4th. That the condition of the skin is similar to the condition of the mucous membrane in scarlatina.

In support of the first proposition, the microscopic examinations of the mucous membranes of the œsophagus, stomach, and intestines were detailed in ten cases of death from scarlatina during the first week of illness, and in six cases who died in the second and third week of the fever. The first effects of the scarlatina poison upon the mucous membrane of the stomach were shown to be the congestion of the bloodvessels and the stripping the epithelium from the tubes and the surface of the organ, and also the softening of the tissues. The tubes are greatly distended by granular and fatty matters, or by small cells intermixed with granules, and in some cases they are lined by a newly-formed membrane. Sometimes no normal cells can be distinguished ; in other cases they are present, but are scattered irregularly. After the second or third week the tubes are found less distended than at an earlier period, and whilst their closed ends are still loaded with granular matters, which greatly obscure the gastric cells. These become more evident towards the surface of the mucous membrane. The cells at this period are sometimes very large, sometimes loaded with fat

or coated with granules, and seem to have but little adhesion to their basement membrane, as they readily separate from the tubes, but adhere closely to each other. The effects of the inflammation upon the intestines seem, in slighter cases, to consist in the effusion of granular and fatty matters into the mucous membrane; but in more severe cases the tubes of Lieberkühn are obstructed by epithelial cells, whilst extravasations of blood take place in the villi, and these, with the rest of the mucous membrane, are loaded with small cells and granules. In one case the mucous membrane was entirely stripped of villi, excepting a few fragments which still remained, and the enlarged and prominent openings of the follicles of Lieberkühn gave its surface the appearance of a sieve. In some instances in which the pancreas has been examined, evidences of disease presented themselves.

The second proposition was stated to be more difficult of proof, inasmuch as vomiting usually occurs only in the first stage, and the author had no opportunity of examining the vomited matters at this period of the disease. In one case, in which vomiting took place in the third week, fibrinous casts of the stomach tubes were discovered, and inflammation of the mucous membrane was proved to have existed by post mortem examination. The chief reason upon which the opinion that desquamation of the epithelium occurs was founded, was from the microscopic examination of the contents of the stomachs of those who had died of this disease. The contents in recent cases consisted of pieces of fine membrane, of cells, and of granules and shreds of membrane. The membranes were of the shape and size of the tubes of the stomach, and were covered with granules and fat. The cells varied from 1-1200th to 1-2200th of an inch, and were usually fringed with fine pieces of membrane. In cases of longer duration the membranes were covered with cells, and were also of the size and shape of the stomach tubes. In order to ascertain if these appearances were trustworthy as evidences of inflammation, the contents of the stomachs of forty-five subjects were examined at the Middlesex Hospital, the condition of the mucous membrane being at the same time noted. In only one were there any fibrinous casts, and it was in a case of acute gastritis. In eighteen there were only separate cells, chiefly of the columnar form, and in none of these was there any inflammatory action. In eight cases casts of the upper parts of the tubes were plentiful, composed only of healthy conical cells, and in all the mucous membrane was in a natural condition. In eighteen there were either plugs formed of cells and granules from the secreting parts of the tubes, or the casts of conical cells were overlaid with granular matters, and in all of these the stomach was more or

less inflamed. Two cases of gastritis, unconnected with scarlatina, were also quoted as examples of the forms in which casts of the stomach tubes appeared in vomited matters during life, and the author stated he had detected casts of the stomach tubes in matters vomited by persons affected with gastritis connected with diseased kidneys, with inflammatory dyspepsia, and other forms of inflammation of the gastric mucous membrane. It was urged that if casts of the gastric tubes can be discovered during life in cases of gastritis, and if in scarlatina this condition exists, and casts have been found in the stomach after death, there is every probability that desquamation of the epithelium takes place in this organ, as it does in the skin and the kidneys.

In support of the third proposition, the results of the following experiments were given in the three cases of scarlatina :—Ten grains of hard boiled white of egg were digested at a temperature of 90° for twelve hours in an infusion of the mucous membrane, to which three per cent. of hydrochloric acid had been previously added. The average loss of albumen was three grains and two-thirds. Similar experiments performed with the stomachs of eleven males who died of various diseases at the same hospital gave an average loss of four grains ; so that there had been scarcely any diminution of pepsine produced by the fever. As a contrast to this were the results of similar experiments upon four cases who died of typhus fever. In two of these the albumen had gained three grains of weight by imbibition, and was not at all softened ; whilst in the other two it was softened, and one had lost only half a grain, the other one grain and a half in weight. But as the activity of the digestion must depend not only upon the relative amount of pepsine, but also upon the bulk of the mucous membrane, this was also attempted to be estimated. The average weight of the mucous membrane of the stomachs of ten males dying of various diseases at the Middlesex Hospital was eighteen drachms, the weight of two recent cases of scarlatina was eighteen and sixteen drachms, (the latter being in a boy,) whilst it only amounted to fifteen drachms in one who died in the third week of illness. In four cases of typhoid fever the average weight of the mucous membrane only reached eleven drachms.

Under the fourth proposition it was stated that the skin had only been examined microscopically in three cases. In the first, in which the patient died after a few days' illness, the only morbid appearance in the cutis was an occasional minute extravasation of blood in the neighbourhood of the sudoriferous ducts. The rete mucosum was greatly thickened, and numerous round cells with large nuclei were everywhere visible, intermixed with the natural cells. The basement membranes

of the sweat-glands were thickened, and the epithelium lining them was so much increased that in most cases it obstructed their channels. In some of the sweat-glands the coils of which they were composed were loaded with coagulated blood, and were greatly and irregularly distended. In the other recent case the appearances were similar, excepting that the external layers of the cuticle were stained with blood in minute patches, and the sweat-ducts were also reddened; but there were no extravasations of blood either in the glands or cutis. In some of the ducts the epithelium was detached from the basement membranes. In the case of a man who died during the third week the sudoriferous tubes were still choked up, but in the glands the epithelium seemed in many places to be torn away, leaving the basement membranes bare, or only covered by ragged particles. The cutis was in a natural condition.

The author stated that although he had, in accordance with the usual custom, described the appearances of the skin and mucous membranes as the results of inflammation, yet that certain considerations suggested the idea that the term when so used was perhaps misapplied. In scarlatina, we find that in each part the morbid condition is mostly confined, in the first instance, to the basement membranes, and consists in the formation of layers of new cells, which, in the skin, are transformed into cuticle of natural appearance, and in the stomach contain pepsine. If future researches should prove that a similar condition occurs in the kidneys and other parts, it will be necessary to look upon the structural changes produced as resulting from increased physiological, rather than from pathological action; and that the primary effect of the scarlatina poison is suddenly and violently to stimulate the natural cell-growth of the various secreting organs.—*Lancet, July* 23, 1864, *p.* 93.

4.—ON THE TREATMENT OF FEVER.

By Dr. Gull, Physician to Guy's Hospital.

[The following short extract from some clinical remarks made by Dr. Gull, is contained in the "Reports of Hospital Practice" in the Medical Times and Gazette. When the pulse in the early stage of typhus or typhoid is very frequent, the patient requires to be well supported, in order to carry him through the later stages of the fever.]

Dr. Gull proceeded to remark: I do not believe in giving enormous doses of brandy in fever. My experience is against that system. I am sure of this, that if you have a severe case of typhus, and the patient is likely to die, no amount of brandy will save him.

Another part of the treatment that requires your attention is this, when I am called in to see a case of fever, I am not unfrequently told that the patient has been given something every half hour. In one case they said every five minutes. The plan of continually feeding Dr. Gull very strongly condemned; further saying, it is a very doubtful question in my mind whether much, or if any, of the nourishment given in severe cases is assimilated. But there is another way to support the patient; keep him cool, sponge his skin over three or four times a-day, give him plenty of liquids to support the renal respiration, and plenty of fresh air to support the pulmonary respiration.—*Med. Times and Gazette, Aug.* 20, 1864, *p.* 196.

5.—ON THE PREVENTION OF ZYMOTIC AND CONSTITUTIONAL DISEASES: FEVERS; CHOLERA; CONSUMPTION, &c.

By Dr. E. D. MAPOTHER, Professor of Hygiene, and Medical Officer of Health for the City of Dublin.

The poison of scarlatina seems the most contagious of all its class, having the greatest infecting distance, and fixing with the greatest tenacity in dwellings, furniture, or clothes—fomites they are technically called. For this reason when the disease breaks out in schools, it is generally politic to close them up entirely for some time. The heat of boiling water destroys the poison, and rooms or clothes in which the poison may be lurking should be thoroughly steamed or fumigated with sulphurous acid emitted from burning sulphur. The disease is inoculable, but the malady so produced being as severe as the ordinary kind, such an operation is not advisable. The most malignant epidemics of this disease from which Ireland has suffered were in 1801–2–3, and 1834.

Measles poison would seem to be nearly as contagious, for instances have occurred of the disease being carried by children's clothes packed in a box and sent from schools where the epidemic had broken out. In America this disease has assumed a serious aspect, for 22,000 soldiers were prostrated by it during the first year's campaign. I may mention that Dr. Salisbury of Ohio has endeavoured to prove that the measles poison owes its origin to a fungus which grows upon rotten straw. He inoculated himself, his wife, and twenty-seven other persons with this fungus, and in all an eruption similar to measles followed, and none of these individuals so protected caught the natural measles, which just at the time was strongly epidemic.

In connexion with this subject, I may remark that Dr. H. Kennedy has published an interesting case where a measles-like eruption followed the application of some mouldy flaxseed meal.

Several hundred children in France are said to have been inoculated with the disease by inserting a tear from a patient into a puncture.

In my Introductory Lecture, I endeavoured to impress on you that typhoid fever was about the most preventible of diseases, yet 140,000 cases occur, and 20,000 at least die of it every year in England, and as the average age of its victims is 21, and all ranks are obnoxious to it, the very flower of the people is included. I will not dwell on the subject further here, save to remark, that in having pustules on the intestinal mucous surface, it resembles the diseases—small-pox, for example—which are characterized by peculiar eruptions on the skin. It is supposed that the seeds of this disease may dry up, and yet, like those of many plants, may germinate when submitted to favourable conditions. There is much greater risk of contagion from the decomposition of the poison in faulty sewers than from the atmosphere about the patients, and its progress is much more virulent when introduced by water drank than by air inspired.

I enumerated many chemical destroyers or disinfectants of acknowledged efficacy, but I wish now to add to the list McDougal's fluid (crude carbolic acid), and McDougal's powder (carbolate of lime), which are cheap, convenient, aud thoroughly reliable in eradicating this pest "born of putrescence,"

Typhus has always been Ireland's epidemic enemy, and is still five times as frequent in Dublin as London in proportion to the population. You all must have read of the lamentable way in which this fever decimated the army in past centuries, and the contagion was usually introduced in the following way: Commissions were formerly given to those who collected a certain number of recruits, and a promiscuous rabble, reeking with the seeds of typhus, was often obtained by ransacking the lowest haunts, and even the jails. In these latter places so virulent was the poison, that the judges, witnesses, and others, who were engaged in court rarely escaped, as I could relate to you if time permitted, from the writings of Lord Bacon. The intensity of the disease would seem now to be much less, for persons in the house with a typhus patient suffer little risk, and those in neighbouring houses none. I have investigated some cases in which the inhabitants of a house were reputed to have caught typhus from patients in a neighbouring one; but I have always found that the attack was due to an original focus usually promoted by similar unsanitary conditions. If there be suitable arrangements for the exit of the infected air and the entrance of the fresh, I have never thought it necessary to banish relatives from the patient's house, for their affectionate solicitude is often more valuable that any hired services. I will now recapitulate the circumstances which recent pathologists assert to be pro-

motive, if not productive, of typhus, and you will acknowledge they are all preventible. 1, over-crowding and defective ventilation; 2, personal squalor, especially the wearing of clothes soaked in cutaneous exhalations, and dark-coloured woollen stuffs have by far the greatest power of absorbing the poison; 3, a low state of system due to scanty or bad food; 4, a medium temperature.

As regards the most plainly malarious of diseases—ague—it used to prevail in Dublin and its vicinity; but owing to improved surface-drainage it has almost wholly disappeared.

The next group of the zymotic diseases is that of which the breathing organs are the seats, and among them influenza is the most clearly epidemic, the most rapidly diffusible, and the most largely fatal, at least 4000 persons in Dublin having succumbed to it in four months of the year 1837. Few old people escape if they are attacked; but Dr. Graves mentions a notable exception. He attended Judge Day, the contemporary of Goldsmith, at the age of 93, and he recovered perfectly. There are reasons for supposing that influenza is due to some specific poison floating in the air, and acting like the emanations from the sweet-smelling vernal grass which gives rise to that remarkable disease, "hay-fever."

Whooping-cough, another zymotic, seems to be excited by some poison which acts exclusively on the branches of that widely-distributed nerve, the pneumogastric. That the poison is not solely aërial would appear from a child just born having had the disease, which must have been carried to it in the mother's womb. Quinsy, croup, and diphtheria, are other examples of this group of diseases, and in the prevention of all of them, ventilation, drainage of excreta, and removal of dampness, are hygienic measures of tried and positive efficacy.

Cholera, the most dreaded of the zymotic diseases, which choose as their seat the digestive canal, is, as I endeavoured to explain on two previous occasions, communicated by a specific poison emitted from a patient already attacked, and carried to others through the water or air. It, therefore, follows the lines of human intercourse for the most part, but outbreaks do undoubtedly occur which allow of no such explanation. It first appeared in Dublin on 22nd March, 1832, and arose in Cork on 12th April, probably from some new source of contagion (perhaps by the steamer which then plied between these cities), for Naas, which lies along the direct road, was not attacked till April 13th. That learned physician, Prof. Aitken, to whose comprehensive treatise I am indebted for many facts, relates the following exceptional case:—"In one of the Western Islands, the most remote from the mainland, the disease suddenly appeared, where so little intercourse existed with the place that

the clergyman of the island continued regularly every Sunday for eighteen months to pray for King William the Fourth, as if he had been alive, after our gracious Queen Victoria had ascended the throne."

The cholera, which is endemic in these countries, prevails, for reasons I explained before, during hot dry weather, and is in London contemporaneous with the putrefaction and stench of the contents of the Thames, and a death in this city from the same disease has just been registered by one of our dispensary medical officers. When our water supply will be available and our sewerage efficient, we may set at defiance even its awfully aggravated and epidemic form.

I will conclude what I have to say upon those zymotic diseases depending upon the introduction of a specific poison into the blood by mentioning that Prof. Polli of Milan has energetically advocated the use of chemical antidotes to them—such as the sulphites—which are known to possess the power of checking catalytic action. If their curative efficacy be proved, they will become still more reliable in preventing the specific zymotic process consequent on the introduction of the poison.

On another occasion I dwelt at perhaps sufficient length upon the influence of want of pure air in the production of consumption, which is so potent that the deaths among in-door artisans, such as tailors, shoemakers, weavers, and printers, from this disease are at least twice as frequent as among those who labour in the open air. Much may be done in the way of prevention, both by public and private hygienic measures. Under the former head I include the opening of public parks and grounds, a close supervision of the establishments where people work in numbers, and the application of the most scientific preventives to the special injuries which many noxious trades inflict, and in such arrangements our French neighbours far excel us. Among means which lie in each individual's power are the fit ventilation of bed-rooms, to which sunlight should have free access by a proper aspect being chosen, and free exercise in the open air with the habit of filling the lungs occasionally to the utmost, for by ordinary breathing their upper parts are not inflated, and remember a disused organ always suffers.

I must mention to you some remarkable facts with regard to the habits of those who have afterwards become consumptive—namely, that they have suffered from that kind of dyspepsia in which acid is too freely produced in the stomach, and that they have exhibited a constant dislike for fatty foods. The peculiarity of their digestion would then be that while albuminous food would be assimilated, the alkalinity of the saliva and pancreatic juice would be neutralized, and their respective functions—namely, the conversion of starch into sugar and the

taking up of fat interfered with. The remedial powers of cod-liver oil, which insinuates itself so readily into the absorbents, may depend upon their supplying this want. The preventives of consumption are urged so enthusiastically by Dr. McCormac that I shall sum up by giving you his list—the respiration of a pure untainted atmosphere by day and night—improvement of the artisan's *locale* and habits, including his bent and sedentary posture—the substitution of steam machinery for dry grinding and stone-chiselling—attention to the digestive and cutaneous functions—improvements in the aspects of houses and sleeping-rooms—increase of out-door pursuits—and lastly, full and free respirations in the open air. Dr. Aitken, Professor of Pathology in the Army Medical School, most justly remarks :—

"Experience has now adequately demonstrated, that the tuberculous cachexia springs from causes over which the public, rather than the medical profession, have control. The physician must be at once impressed with the belief, and encouraged with the hope, that when he acquires the confidence of the public in the practice of his profession, he may exercise a powerful influence for good in teaching how much they may themselves control the ravages of consumption by prudent marriages and sanitary attention to offspring. There are several circumstances which show the great influence of public sanitary measures in controlling the ravages of consumption when these measures are scientifically directed to the preservation of the general health, and especially when men are associated together in great communities—an influence much greater than the best directed efforts of the medical profession can establish through their *materia medica*. It is by the mode of life as citizens of the world, in the social relations of husbands and wives, parents and children, and in the public relation of masters and workmen, that the extent and ravages of consumption are to be controlled. It is by a strict attention to the rearing of offspring, and in the subsequent regulation of food, clothing, cleanliness, occupation, the choice of a profession, and by many other circumstances which have an obvious influence (perhaps at first sight inappreciable) on the maintenance of the general health, that our hopes of success as practitioners of medicine must rest in the prevention of that bad habit of body which developes and propagates the tubercular diseases in civilized society."

Upon dietetic diseases I made a few remarks on a former occasion, and now, concerning one of them—namely, gout—I can tell you in a very few words all the measures which are preventive by quoting Abernethy's reply when asked, What was a cure for the gout? "Live on sixpence a day and earn it," for temperance, exercise, and a freely acting skin, are among the hygienic requisites comprised in the aphorism.

As I have endeavoured to elucidate, our tissues do not remain permanently ours, but are in health being constantly removed and renewed. Now, when renewal fails and substances lower in the scale of human chemistry become deposited instead, we give the name of "degeneration" to the condition. The fatty form in which a tissue—the muscular, for example—is either chemically converted into fat, or is removed to give place to that substance, is the most frequent, and chooses such vital organs as the heart, brain, (yellow softening), and the kidney (chronic Bright's disease.) We are warned that sedentary habits are strongly promotive of this affection, for it was fatal to such prolific writers as Abercrombie, Pereira, and Thackeray, and such industrious lawyers as Cresswell and Slade. The influence of the ingestion of too much heat-producing food to the exclusion of tissue-material we have already discussed; but it remains for me to explain the physiological effect of alcohol, which we shall find tends powerfully to the production of fatty degeneration. It checks the changes which our tissues are undergoing, interferes with the due oxidation of the blood, or the combustion of its waste material, and, according to many authorities, supplies material itself for the formation of fat, as more certainly does the sugar, which most of its preparations plentifully contain. Distilled spirits are for this last reason less promotive of fatty degeneration than other alcoholic liquors. I shall not now dwell on other evils of intoxication, lamentable though they are, save to say that it is not on the individual alone they work destructive changes, for his offspring, in addition to moral injury, undergo most manifest physical deterioration. In this way alcohol is one of the most powerful causes of that remarkable character of disease in the nineteenth century—namely, that while the mean lifetime of adults is becoming prolonged, that of children is being most perceptibly shortened.—*Dublin Medical Press, Sept.* 14, 1864, *p*, 261.

6.—ON INTERMITTENT FEVER.

By Dr. S. H. Ward, Physician to the Seamen's Hospital, "Dreadnought," &c.

[Dr. Ward possesses tolerably ample notes of between two and three hundred cases of ague, which have been under his care during the last five or six years. He gives the places where the disease was contracted, and continues:]

An ague may appear to be cured, but it has a tendency to return; and when it does so after a short interval, we have what is called relapsing ague. Dr. Graves—to whose admirable clinical lectures I am always pleased to make reference—was the

first, I believe, to establish, from a long series of observations, the law that the periodicity of agues applies, not only to the succession of paroxysms, but to the free intervals. My own experience leads me to confirm this view, the period of relapse, in the few cases in which I could determine it, having occurred on the day on which the fit would have taken place had the disease not been arrested. Thus I find, in one case of tertian, the fit occurring on the eighteenth day after the last, and, in other cases, on the twelfth day.

About a fifth of recent cases of ague were ushered in by rigors, pain in the head and back, and by more or less gastric derangement, indicated by furred tongue, pain in the abdomen, bilious vomiting, and diarrhœa. In the other cases they were merely the phenomena of the recurring paroxysms, upon which I need not dwell more than to recall the checked action of skin, the cold surface, the pinched, wrinkled aspect, and arrested secretions of the cold stage; the then powerful determination of blood to the internal organs; the reaction characterizing the second stage in the effort of the heart to throw off the blood from the centre to the circumference, the intense heat of surface, and still congested state of viscera; and the resolution, marked by re-established secretions, especially by action of skin and the relief of internal organs, which is distinctive of the third stage. The paroxysm over, the patient generally remains well until the next accession; but not always so. In about a fifth of recent cases, as recorded here, there is more or less gastric irritation continuing in the intervals of the paroxysms. In a not very small proportion of cases, the liver and spleen, especially the latter, are enlarged during the paroxysms, as determined by percussion and palpation; and sometimes they remain so during the intervals. There is also more or less tenderness over these viscera, and indications of congestion and functional disorder of liver in the shape of bilious vomiting and diarrhœa. But during the cold and hot stages, congestion is not limited to the abdominal viscera. Delirium not unfrequently shows that the brain is temporarily implicated. Cough, hurried breathing, and a sense of tightness over the chest, tell of a congested state of lungs. In one case of quotidian that was under my care, the patient had hæmoptysis every morning during the cold stage. In two or three cases, pain over the loins and albuminous urine showed that the kidneys were congested.

It has been our custom here, when a patient has been admitted suffering from intermittent fever, to defer treatment until after the occurrence of a paroxysm, in order to satisfy ourselves—first as to the existence of the malady; secondly, as to its type. In cases where there is much gastric derange-

ment, one or two doses of calomel, followed by a purgative, have preceded the special treatment, and the patients have been put upon slop diet. Generally the liver and stomach have readily responded to this treatment; the tongue has become clean, and vomiting arrested. But this is not always so, and there has been, especially in recent cases occurring along shore, some obstinacy in the gastric derangement, I have not cared usually to give quinine until the tongue is tolerably clean and the stomach free from irritability. When the gastric irritation is relieved, or where it does not exist, on having ascertained the time of access of paroxysm, we have given a full dose of quinine about three hours before its expected occurrence. I have, after some pains to ascertain it, come to the conclusion that the quinine acts better when given about three hours than at a longer or shorter period before the expected attack. I have also endeavoured to determine the minimum dose of quinine that is required, and this I have fixed at ten grains. Where the paroxysms are irregular in their character, I have found five grains of quinine, given every four hours answer thoroughly. Out of 109 recent cases, 102 yielded at once either to ten grains or five grains every four hours, and in but 7 was a repetition or continuance of large doses required. Two or three cases complicated with severe gastric derangement proved more obstinate. For the removal of cachexia, and to guard against a relapse, quinine was generally given in two grains three times a day for a week or two, and the patients usually had a bottle of quinine mixture to take out with them. The quinine occasionally produced ringing in the ears and deafness, but only in one case did I observe any more serious effects. It was in a man who was admitted with tertian on Oct. 29th, who had had ague for a month, but had not any indications of head affection during the attacks. He was ordered ten grains of quinine before the expected paroxysm, and three grains three times a day. When seen on Nov. 1st, he had impaired motion of the right side of the face and right arm, with mouth somewhat drawn to left side, delirium, pupils contracted, pulse weak, surface moist; had passed his urine unconsciously, and stools twice in bed. Ordered a blister to nape of neck, and the omission of the quinine. He was much relieved on the following day, and by the end of a week all the cerebral symptoms had disappeared. Although these symptoms appeared during the administration of quinine, and disappeared on its discontinuance, yet it would not be quite logical to regard the quinine and the attack as cause and effect; for the cerebral affection occurred on the day on which the ague fit was due, and may have been a masked form of it.

I have fairly tried the liquor potassæ arsenitis against the quinine, in doses as full and frequently repeated as I dared to

venture upon, and have continued it until irritation of the intestinal mucous coat rendered desistence imperative; but have not succeeded in checking the paroxysms as with quinine. Some physicians, admitting the greater efficacy of quinine in arresting the paroxysms, have claimed for arsenic, and also for strychnia, greater power in preventing a relapse. I believe, however, that quinine is quite effective for this purpose if continued in small doses for a considerable time, and also that it is the best prophylactic against the disease. A captain who consulted me a year or two back said he was on the point of sailing for Jamaica, and that he had never been there without contracting severe ague. I recommended him to take quinine, in small doses, two or three times a day, all the way out. He did so; and on his return to England reported that for the first time he had enjoyed immunity from the disease.—*Lancet, Sept.* 24, 1864, *p.* 347.

7.—ON THE TREATMENT OF RHEUMATIC FEVER.

By JOHN ROBERTON, Esq., Manchester.

[After some remarks upon heart affection in rheumatic fever, the author passes on to the treatment which he considers the best fitted to prevent this, and gives the following cases.]

The first is that of a vigorous adult male. After fatigue and unusual exposure to the weather, my patient became feverish, and complained of headache, with acute pain in the right knee. By the evening of the same day, the pain had extended to the ankle, as well as to the other knee; and the following morning the joints of the lower extremities were generally affected, with the addition of pain in the loins and one shoulder. In a few hours, nearly all the joints were the seat of acute inflammation. The nature of the case being obvious, a pill, consisting of a grain of opium and two and a half grains of calomel, was administered every three hours till six grains of opium and fifteen of calomel had been taken. The effects were some relief of the pains and a moist skin. I then ordered a purgative mixture, composed of an ounce and a half of Epsom salts and two drachms of the wine of colchicum, in eight ounces of cinnamon water; the dose, a wine-glassful, was repeated every four hours until there was free, not profuse purging. This being accomplished, I prescribed Peruvian bark with quinine, compounded thus: one ounce of powdered cinchona bark, with twenty-four grains of the sulphate of quinine, were shaken up in eight ounces of water, with the addition of a little dilute sulphuric acid to secure the solution of the quinine. Of this a tablespoonful was given every third hour, and also during the night, when the patient was

awake. Lemon-juice in water was taken freely as a beverage; and dry cotton-wool, made warm, was wrapped round the joints that were most painful. This course, being steadily maintained —I refer especially to the use of the cinchona and quinine— allayed in a few days the articular inflammation, and speedily effected a cure. Indeed, where this treatment is pursued, I rarely have a patient who is obliged to remain within doors longer than three weeks. Of course, the remedies mentioned have to be varied as to doses, &c., according to the age of the patient and other circumstances. For instance, when the muscles are the chief seat of the disease—a most painful variety of rheumatism—opium may have to be given nightly throughout the illness.

The other case was that of a tall vigorous girl, twelve years old. When I first saw her she was in bed, suffering from what appeared to be a sharp feverish cold. The following morning, there was pain in the joints of one limb; and, by the evening, painful swellings in the joints of both the upper and lower extremities, such as left no doubt as to the nature of the complaint. Indeed, late in the evening of this second day, the joints of the fingers and toes were all affected. I immediately ordered for her eight pills—one to be taken every three hours—each containing a grain and a half of calomel, with a quarter of a grain of opium. In about twenty-four hours from this, an aperient mixture was prescribed, consisting of Epsom salts half an ounce, wine of colchicum a drachm, an ounce and a half of compound tincture of senna, with cinnamon water to six ounces; of which an ounce was given every fourth hour to cause free purging. When this had been accomplished, and the fever and pain much reduced, the following was ordered.

Quinine, xxiv. grains; dilute sulphuric acid, xx. minims; red cinchona bark (in powder) ℥vj.; and water to ℨvj.

Of this, well shaken up, was given, *perseveringly*, a teaspoonful every three hours by day, and also in the night, when she was awake. Before the end of the eighth day, the pain had left; and in a fortnight she might be said to be quite well. This case occurred about two years ago, and the health has ever since been sound and vigorous. Last autumn, I treated a strong girl of eleven, living in the country, in the same manner as the above; and she had to keep her bed only for nine or ten days, and has since been in excellent health.

It is assumed, when I am speaking of the treatment of acute rheumatism, that the patient is seen by me *at the commencement*. When a case has been going on without treatment, it may be, for two or three weeks, the remedies I have mentioned might not be altogether applicable.

Certain important particulars, with reference to the general management of this disease, I give in the following order.

1. Be the patient ever so robust, and the fever and pain severe, I never bleed, either by the lancet or with leeches.

2. I avoid diaphoretics; that is, doses of the Dover's powder to cause and keep up profuse sweating; which was, I may say, the universal practice in my early days.

3. I forbid the use of fomentations to the inflamed joints; indeed I forbid every kind of application to the joints, excepting *dry warm cotton*, or a dry warm silk handkerchief. The use of friction with some anodyne liniment (apt to be had recourse to by the friends of the patient, unless guarded against) I also prohibit.

4. In patients under the age of twenty, I do not allow even the hands or face to be sponged or washed during the fever; indeed, I dread every kind of liquid application. I well remember, early in my residence here, a fine young man, about the age of sixteen, brought home from a boarding-school with acute rheumatism, his knees enveloped in wetted bandages. The consequence was death in three days, from cardiac inflammation.

5. The quinine and bark should not be given until the feverish symptoms have been allayed by the use of calomel and opium, followed by a purgative.

I will just add that, when the patient has been seen early, and treated as here recommended, I have never, during the last thirty years, known heart affection to follow in a single instance.

I may state, in conclusion, that I am quite aware there are several eminent authors who recommend, in rheumatic fever, other remedies and modes of treatment than what I have mentioned; but I have thought it best, for the sake of brevity, to give an outline merely of my views and experience.—*British Medical Journal, June* 18, 1864, *p.* 659.

8.—ON THE THERAPEUTIC VALUE OF ALKALINE AND EARTHY SULPHITES IN THE TREATMENT OF CATALYTIC DISEASES.

By Dr. H. R. de Ricci.

[The discovery, if indeed it may be so called, of the action of sulphites in certain forms of catalytic (zymotic) diseases, was made by Dr. Polli of Milan. Since the publication of Dr. Polli's papers on the subject, Dr. de Ricci has devoted much time and attention to its investigation.]

For the benefit of those who may not have read my former publications on the action of the alkaline and earthy sulphites,

nor the original writings of Professor Polli, I shall now, as briefly as possible, recount the origin and result of his discoveries.

For several years past a theory has been almost universally gaining ground that a great number of diseases depend essentially on the presence of an organic poison circulating in the system, where, acting as a ferment in the blood, it multiplies itself, vitiating the animal fluids and giving rise to divers diseases, according to the special poison in circulation; thus in one case producing small-pox, in another scarlatina, in another puerperal fever, &c. These diseases have been termed *zymotic*, on the supposition that the circulating poison acted as a *ferment* in the blood; but, as the precise mode of action of these animal poisons is not as yet well understood (though it is no doubt a chemico-vital action), I shall throughout this paper employ the term *catalytic* instead of *zymotic*, as perhaps better calculated to convey the idea of the function of these poisons, without absolutely involving a principle, which the term zymotic might do.

Several years ago Professor Polli, being fully convinced of the truth of the catalytic theory of many diseases, devoted his time and talents to search out some means by which these poisons, even after they were absorbed or developed in the animal economy, might be neutralized, and eventually eliminated, without, at the same time, imperilling the integrity of the blood. The task was an arduous one, for the great physiologist, C. Bernard, had dogmatically asserted that any substance capable of destroying a catalytic poison in the blood would, at the same time, so alter that fluid itself that it would be rendered incapable of performing its vital functions. Professor Polli, however, had long observed the action of sulphurous acid in arresting the process of fermentation. He was convinced in his own mind that in it would be found the anti-catalytic substance he was seeking for. He persisted in his researches, and eventually succeeded in establishing that not only sulphurous acid possesses the property of arresting fermentation and neutralizing catalytic action, but that also its alkaline and earthy compounds have the same power, with this difference, that while sulphurous acid can not in any way be introduced into the circulation with safety, the alkaline and earthy sulphites, hyposulphites, and bisulphites can be administered with the greatest impunity, even in large doses; and their presence can always be detected when administered, not only in the blood but in the tissues and evacuations. Having satisfactorily established this important fact, he began a series of experiments on animals, which proved, most successfully, the correctness of his theory and the accuracy of his deductions. Nothing could give me greater pleasure

than to recount the several interesting experiments which he performed, but it would lengthen this paper too much, and otherwise occupy too much of the space of the Journal; and, for those who are interested in this matter, I beg to refer them to a communication read by me, about a year ago, at the Obstetrical Society in this city, in which will be found a short epitome of Professor Polli's experiments.

From the moment I first read the account of Professor Polli's researches I came to the conclusion that his discovery was either valueless or of immense value. In such a case there could be no medium; it was either utterly worthless, or it was a discovery second to none—a discovery even greater than that of vaccination, and one which would constitute one of the greatest epochs in the annals of medicine; for vaccine could, at most, only ensure the vaccinated against one single disease, while the sulphites—if they truly could neutralize the action of catalytic poisons—of such poisons as *glanders* (see Polli's experiments)—would be able to arrest the course of small-pox, hydrophobia, syphilis, infection from dissecting wounds, erysipelas, puerperal fever, measles, scarlatina, whooping cough, dysentery, diarrhœa, cholera, influenza, typhus, dothinenteria, plague, diphtheria, &c., &c., all which are classed by Dr. Farre as zymotic diseases. The question seemed to me of such vast magnitude and importance that I solicited in every direction for co-operation in testing the real value of these sulphites. I first tried them on myself, and finding them decidedly harmless, even in doses of one scruple, five or six times a-day, I began to administer them in every case where I thought that a catalytic poison might be the cause of disease. In no case did I meet with any mishap, and in most cases I think I can fairly say I was successful. In no case did the exhibition of the sulphites produce sickness of stomach, diarrhœa, or any other inconvenience; and in every case their administration seemed to be of decided advantage.

The first case I shall describe is one of great interest and value in a clinical point of view; it was undoubtedly a case of infection from an animal poison. The patient was almost given over as lost, so severe were the symptoms of the disorder; yet the patient recovered, and the treatment consisted solely in the administration of the bisulphite of soda, in full, repeated, and continued doses.

A lady of about forty-five years of age, of sound constitution, and in the enjoyment of excellent health, was suddenly called, about a year ago, to the death-bed of one who was very dear to her. That death-bed was fearfully sudden and unexpected, and that poor lady could not be persuaded, long after death had indubitably taken place, that the spirit of the beloved one had

really fled. She would not leave the corpse; she threw herself on it, and kissed it over and over again, and could not be induced to leave it, even when the discolouration of the skin and the offensive smell of rapidly-advancing decomposition gave ample testimony of the reality of death. The burial was performed two days after death, owing to the rapid decomposition of the body; and, soon after the funeral, I was hastily summoned to the bedside of this lady, whom I found in the following condition. It was about five in the morning when I entered the bedroom. She had gone to bed the night before quite calm and resigned, and on the previous day she had partaken fairly of food, but had not eaten anything which could in any way account for the state in which I found her, of which the following is a fair sketch:—The windows of the bedroom being open, the morning light streamed freely into the room, and as I approached the foot of the bed I had a full view of the patient's face. To those of my readers who, like myself, have been familiar with the victims of cholera I shall simply say that the patient looked like one in cholera, in the stage of collapse. To those who have not yet had the melancholy opportunity of witnessing a case of that terrible disease I shall say that I hardly recognised my friend, so altered, and pinched, and ghastly were her features. Her eyes were sunk, and surrounded by a lead-coloured zone; her cheeks, which, but a day before, were plump and ruddy, were now hollow and sunk; her eyes were glassy; her pulse scarcely to be felt; the surface of the body cold; her breath cold; her tongue cold; her voice low and husky; her faculties perfectly clear. She now lay quite prostrate on her back; but for some hours previously had suffered greatly from vomiting, cramps, and diarrhœa, which was of the characteristic rice-water appearance always observed in cholera. I at once administered a full supply of hot brandy and water, ordered turpentine stupes to the abdomen and limbs, treating the case exactly as one of Asiatic cholera; and, being fully alive to the grave nature of the attack, requested for further advice, and at once sent off for my valued friend, the late Dr. Mayne. At first I felt singularly at a loss how to account for so sudden and so severe an attack of what seemed to be a genuine case of Asiatic cholera. So true was it to symptoms that, when Dr. Mayne looked at the patient, he whispered to me: "If cholera were in the country one would not hesitate to give this case a name." The clue to the disease was, however, given to me, in a few words, by the patient herself. As soon as she had taken the brandy she said to me:—"The smell of the body was dreadful; I cannot get rid of it in any way;" and immediately she began to retch. She had given me the key, and the mystery of her case was solved. It was no doubt a case of putrid infection—of septicemia; and if there

was any truth in the "sulphite" theory it should prove of value in such a case as this. I at once ordered a strong solution of bisulphite of soda in infusion of quassia, with tincture of bitter orange peel and Battley's sedative—two drachms of the bisulphite to the ounce—and gave it in large teaspoonful doses, every half-hour at first, and then every hour, each dose containing nearly twenty grains of the bisulphite. I watched this case incessantly myself, day and night, and the result was most satisfactory. All the symptoms by degrees abated, and in a very few days the patient was fully convalescent. Dr. Mayne, who had anxiously watched this case with myself, was so impressed with the results obtained that he told me he would give the remedy a full trial in every case of scarlatina that should come under his care; and, in addition, promised (at my suggestion) that he would prescribe a dose of the sulphites daily to every healthy member of the family in which there was a case of scarlatina, to test its value as a prophylactic; for if a sulphite could destroy a catalytic principle, even when developed in the system, it should also have the power of preventing the development of that principle from the commencement.

As I stated above, the lady recovered, and, apparently, was restored to absolute health; she, however, complained to me occasionally of wandering pain, and general *mal-aise* at times, which she could not account for. About five months after her recovery she hurt her leg; it was a very trifling abrasion, but it assumed an angry look, and seemed determined not to heal, when, at the end of two months, she broke out all over with an extraordinary eruption, more like erythema-nodosum than anything else, when I at once placed her again on bisulphite of soda, in the supposition that some of the poison was still lurking in her blood, when the sore in the leg rapidly healed and the eruption disappeared, leaving the patient perfectly well.

The next two cases in my list were well-marked types of measles. I shall not take up the time of my readers by giving the details of them. I shall merely state that they were severe cases; that they were treated solely with bisulphite of soda, in scruple doses, every second or third hour, and that both cases grew rapidly well.

The fourth case is one of poisoned wound. A. B., aged about thirty-five, a gardener, was grafting a cactus, and in carelessly handling such a thorny plant, got the back of his left hand severely stung in different places. He plucked out as many of the spines as he could discover, and thought no more about the matter; but in the course of twelve hours or so the hand began to swell and be painful. He at once wrapped it up in a poultice; but the pain and swelling not abating, his employer sent him to me, three days after he had been stung. I found his hand enor-

mously swelled, of a dusky purple colour, with large bullæ over the dorsum; the fore-arm also swelled, though not discoloured, but presenting several longitudinal red lines running up to the elbow. The man complained of great pain locally, of intense thirst, headache, loss of appetite, shivering, and general feeling of sickness. His tongue was furred and brown. He had, of his own accord, taken a dose of senna and salts that morning. I at once made an incision in the dorsum of the hand, and some pus came out. It was not, however, like cutting into an abscess—no gushing of matter took place, only an oozing, like as if I had cut into a sponge saturated with pus. I therefore made a second incision, parallel to the first, from which some more pus came out; ordered him to wrap up the hand in a large linseed-meal poultice, and prescribed the bisulphite of soda, in scruple doses, every second hour. I desired the man to keep quiet at home—without, however, ordering him to keep his bed; directed him to take light nutritious food, and to drink two pints of XX porter in the day. The following day the hand looked better; it was less swollen and purple, and the pus was in larger quantity and better looking. The man felt also better; he had less thirst, and had only had two slight shiverings. The bowels not having been freed, I ordered him some sulphur, with magnesia and scammony, as an aperient, and to persist with the bisulphite, taking it now every third hour. The following day the man was so much improved that he called on me. The hand looked still better; the incisions which I had made had ulcerated somewhat round their edges, but the suppuration was free, and the pus seemed quite healthy; there was no pain in the arm, and the red lines were very much paler. Matters looking so very much better, I desired the man to take the sulphite only three times in the twenty-four hours; to take a good allowance of food; to stay much in the open air; but to still keep the arm in a sling, and the hand wrapped in a poultice. Two days later he again came; when, finding tha all swelling had subsided, all pain gone, all red lines disappeared, the sore inclined to granulate, I stopped the poultice, and desired him to dress the hand with some warm dressing, containing a little balsam of Peru, and to take one scruple of the bisulphite twice a day. Two days after the man returned to me, not looking as well as at the previous visit. He had a yellowish tinge in his skin; his tongue was foul; he complained of chilliness, almost amounting to shivering, and the sore at the back of the hand looked unhealthy and angry. On stripping the arm, the red lines were again visible, but of a very pale red; while above the elbow, from its bend to the axilla, a hard, knotty, and extremely painful cord could be felt and seen running up parallel to the brachial artery. I at once returned to

the primary doses of bisulphite, wrapped up the hand in a poultice, and watched to see what the result would be. The man immediately began to mend, and in four days not a trace of hardness was to be felt. Fearing, however, a relapse, I continued administering four scruples of bisulphite daily for ten days longer, by which time the hand was perfectly healed, and the man returned to his work.

Two better cases for testing the effects of sulphites could not possibly have been selected; in both cases the disease clearly resulted from the working of a poisonous element in the blood, evidently introduced from without in the first case, whilst it may in the second case have originated within the system subsequent to the stinging with the thorns, if one does not feel justified in considering cactus thorns as poisonous of themselves; be this, however, as it may, the second case was as clearly one of purulent absorption as the first was of putrid infection—the red lines up the arm marking the course of the inflamed lymphathics as the hard knotty condition of the veins denoting the phlebitic inflammation. Both were treated solely with sulphites, and both completely recovered. It would be great presumption, no doubt, to say that in both cases the patients would have lost their lives except for the saving properties of the bisulphite of soda administered; but I still cannot avoid believing that the sulphurous acid did prevent the spreading of the catalytic principle by rendering it incapable of re-producing itself; and, while keeping it in abeyance, allowed time for its elimination by the ordinary powers of nature; and I think we have a confirmation of this view in the occurrence of a relapse in both cases, where it would appear as if, when the bisulphite was stopped, all the poison had not yet been eliminated, the blood disease breaking out again the moment that the poison was freed of its antagonist; and a cure being effected by administering more of the anti-catalytic remedy until every trace of the animal poison was eliminated.—*Dublin Quarterly Journal, August*, 1864, *p.* 28.

9.—ON THE COMPARATIVE VALUE OF SULPHURIC ETHER AND AMMONIA, AND CHLORIC ETHER AND AMMONIA AS ANTI-SPASMODICS IN TYPHOID FEVER.

By Dr. Henry Osborn, Consulting Physician to the Southampton Dispensary.

[The case was one of typhoid fever in a gentleman twenty-two years of age. The lips, teeth, and tongue were thickly incrusted with black sordes; pulse 120; skin hot and dry.]

Being informed that wine had caused very great excitement,

and observing a tendency to subsultus tendinum, we agreed to give chloric ether in combination with carbonate of ammonia.

Towards evening the unfavourable symptoms were more pronounced, and I was again requested to see the patient; but my colleague in the case could not make it convenient to attend. Wishing to know the effect produced by the mixture ordered in the morning, I administered a dose of it myself; and, finding no mitigation of the symptoms, resolved to try the effect of wine, which, though cautiously administered, produced so much excitement that it could not be continued with safety. I then gave ammonia and chloroform, omitting the spirit contained in the so-called chloric ether, but without effect; and the tetanic spasms had reached their acme. Involuntary evacuations took place, and the pulse was too rapid to be counted; there was total insensibility to those around him; violent convulsive movements, especially of the right arm, which was contracted upon the chest, and one leg was similarly affected; while the jaws were spasmodically closed. I then ordered a mixture of sulphuric ether and carbonate of ammonia, in the same proportion as the chloric ether and ammonia; and the moment the muscles of the jaw had relaxed sufficiently to admit a teaspoon, the mixture was administered in divided doses, and immediate effect was produced, as shown by the general tranquillity throughout the system. The convulsive movements returned, however, at short intervals; and some time was lost by the locking of the teeth, but this was ultimately overcome by passing a bottle containing chloroform under the nose of the patient, and when the spasm relaxed the mixture was introduced, care being taken not to overstimulate. Cold applications to the shaved head served to regulate the stimulating effects of the medicine; while ice, beef-tea, and beef-essence, were given between each dose of the medicine.

In such a case it was necessary to stand by the bedside during the night, and to administer the remedies chiefly with my own hands; but early in the morning I had the satisfaction of seeing the patient tranquil.

Not being convinced that so great a difference could exist between sulphuric ether and chloric ether or chloroform in arresting tetanic convulsions, I made one or two more trials of the chloric ether and ammonia, but no effect was produced by it.

It may be requisite to state that I found the addition of ipecacuanha wine, in the dose of three to five drops, materially assist in removing the sordes and promoting perspiration. We cannot, I believe, assign any chemical action to ammonia, sulphuric ether, and ipecacuanha, in removing the morbid matter of typhoid from the blood; the action must therefore be physiological.—*Lancet, July* 2, 1864, *p.* 7.

10.—ON THE FEBRIFUGE PROPERTIES OF THE COMMON WHITE WILLOW.

By Dr. CAZIN.

It has long been known that the white willow and its alkaloïd, salicine, possess febrifuge properties, and the fortunate coincidence has often been remarked of the growth of the willow in those very localities where intermittent fevers prevail—namely, in low marshy situations. Dr. Cazin remarks, that if the willow has failed to exert a febrifuge action in all cases, the circumstance is due to the smallness of the dose employed, and he suggests that the remedy should be associated with other bitter and aromatic vegetable extracts. M. Cazin has been in the habit of treating in this manner for the last twenty years the intermittent fever which prevails among the inhabitants of the marshy grounds about Calais; and he has found the willow an efficient substitute for cinchona and quinine. In the early stage he recommends an emetic or aperient when gastric disturbance is present, and then he prescribes large doses of the bark of the white willow, alone or in combination with camomile, wormwood, and some other indigenous tonics, alteratives, and aromatics. He considers that the combinations of vegetable bitters with astringent and aromatic substances are far more efficient than the indigenous febrifuges administered alone. He also thinks it desirable to persevere for a week or ten days in the treatment after the removal of the paroxysms, and to prescribe a large dose every week for a month or longer, if any symptoms indicate the danger of a relapse. M. Cazin recommends the willow bark to be employed in a decoction (ʒss to ʒj in a pint of water) or in powder in the dose of ʒij to ʒj, in wine or beer, or in the form of a tincture or extract.—*British and Foreign Medico-Chirurgical Review, July* 1864, *p.* 248.

DISEASES OF THE NERVOUS SYSTEM.

11.—ON THE PATHOLOGY OF TETANUS.

By J. LOCKHART CLARKE, Esq., F.R.S., London.

[There is an able article by Dr. Lockhart Clarke in the Lancet for Sept. 3, on the microscopic appearances presented by the spinal cord in cases of death from tetanus. It seems that during the progress of the disease, there is a fluid exudation thrown out into the interior of the cord whereby the natural tissue of the part becomes broken down and ultimately dissolved. Every region—the cervical, dorsal, and lumbar is more or less affected. In some sections the injury was limited to the grey

substance; in others it involved the white columns, particularly the posterior and lateral. Hence the primary morbid action is more probably vascular, not nervous. Mr. Clarke at the conclusion of the paper briefly gives the *treatment* he would himself pursue in cases of tetanus.]

Division of the wounded nerve as early and as high up as possible; cupping along the course of the spine; frequent doses of calomel combined with opium; and potassio-tartrate of antimony, repeated, during the severer paroxysms, at short intervals and in sufficient quantity to produce nausea, or perhaps vomiting. The chief object of the tartrate of antimony is to subdue the spasms; but it might also assist in arresting the morbid action of the bloodvessels. Some years back, in the columns of this journal, I recommended the use of tartrate of antimony in those violent and prolonged paroxysms of hysteria which are so intractable and distressing, and I have never known it to fail. As soon as nausea supervenes, the spasms, however violent, begin to relax; and if the paroxysm be excited or prolonged by the presence of undigested food in the stomach, the vomiting will prevent its recurrence. In tetanus, any depression that might be caused by the antimony would be much less than the exhaustion of the nervous system resultiug from the violence of the spasms.—*Lancet, Sept.* 3, 1864, *p.* 261.

12.—ON THE TREATMENT OF TETANUS BY THE LOCAL APPLICATION OF TOBACCO.

By Henry J. Tyrrell, Esq., one of the Surgeons to Jervis-street Hospital, Dublin.

On February 19 I laid before the Surgical Society of Dublin (see *Braithwaite's Retrospect*, Vol. 49, p. 58) the details of a case of traumatic tetanus treated by the application of tobacco stupes to the wounded part, and then I stated my reasons for preferring the topical use of tobacco to the internal administration of nicotine, as recommended by Professor Haughton, in 1862, in a paper which he read before the College of Physicians.

As another and better marked case of acute tetanus has lately been treated and cured by me by the use of tobacco locally applied, I think it advisable to let the Profession know, through the columns of the *Medical Times and Gazette*, the manner in which I have acted and my theory on the subject. It is that as tobacco or its active principle, nicotine, is of service when given internally, *à priori* it should be more so in peripheral or eccentric tetanus if applied locally by paralysing the nerves of the affected part from which the irritation proceeds, and thus remov-

ing the cause of tetanic spasms; and that when tetanus arises from a small wound, when a decided impression should be made quickly, a solution of nicotine of known strength or of tobacco should be applied to the wound and surrounding parts. And in the idiopathic form of the disease, if the cuticle along the back was raised by a blister, the endermic use of the remedy would more quickly bring the cord under its influence and with less vital depression than when given internally.

In the first case which I treated the wound was large, but in the subject of the present communication it was very small and insignificant, not calling for surgical assistance. The following is the history of the case:—

Michael K., aged thirty-five years, by trade a painter, of temperate habits, was admitted into Jervis-street Hospital on June 22, 1864, under my care. He was carried to the Hospital by four men in a state of great prostration, his teeth clenched, the muscles of expression and mastication rigidly contracted, the dorsal and cervical muscles also rigid. He was conscious and able to speak a little, but could not open his teeth to the slightest extent; he was bathed in a cold perspiration, his pulse 95, very weak and intermittent. His wife stated that on the 10th of June he cut his nose by a slight fall against a wall, but so trivial was the injury received that he thought nothing about it, went on with his work as if nothing had happened. However, on the 19th he felt some stiffness in the jaws, for which a medical man recommended him to apply a mustard poultice, and to take some medicine which he gave him. He rapidly got worse, and she had him taken to the Hospital. On examination I found a slight lacerated wound about half an inch in length on the right ala of the nose: it appeared indolent, without disposition to heal. There was no difficulty in the diagnosis; it was evidently one of acute traumatic tetanus with extreme depression.

If I gave nicotine I was afraid the depressing action of the drug would prove fatal, and recollecting the success which attended the local application of tobacco stupes in the case which I published, I determined to give another trial to the plan. As the wound was very small, I had the cuticle from the entire nose and for about twelve inches square of the back of the neck removed by boiling water and vesicating collodion, and covered the denuded surfaces with spongio piline saturated with a strong solution of Cavendish tobacco. The infusion was made by infusing one ounce of the unrolled leaves in twenty ounces of boiling water for an hour. The infusion was not strained, and both water and leaves were applied. I likewise determined to support his failing strength, and for this purpose

directed an enema of sixteen ounces of strong beef-tea to be thrown up the rectum to unload the intestine, and after that was accomplished an injection to be administered every two hours, containing one ounce of brandy, ℥j. of sulphuric ether, four grains of sulphate of quinine, and six ounces of strong beef-tea. My residents, Mr. O'Grady and Mr Fegan, remained up during the night, and attended most carefully to the patient.

June 23, 9 a.m.—He passed a very restless night; pulse 88, weak and intermittent; respirations 30; did not sleep; the muscles of the neck slightly relaxed; the abdominal and dorsal muscles more tense if possible; he cannot swallow his saliva, any attempt to do so gives exquisite pain in the fauces and brings on severe spasms, throwing the body into an arch with the heels and head resting on the bed. I ordered the treatment to be continued, but with an interval of four hours between each enema; a fresh infusion of tobacco to be made. I saw him again at 2 p.m.—Spasms somewhat relaxed, and he can separate his teeth so far as to allow a cedar pencil between them; pulse 86, stronger, not intermittent. 4 o'clock.—The rectum rejected the enema, and at 6 the pulse rose to 108, and became excessively weak. 9 p.m.—Ordered the enema to be repeated, having added to it twenty grains of tinct. opii.

24th, 1 a.m.—As he could swallow by sucking through a sponge, I ordered him a draught containing one ounce of brandy, 20 gt. tinct. opii in a glass of water; this he took through a sponge. However, it was with great difficulty he managed to swallow it, as now and again a drop would go wrong and cause the most distressing spasms. He took forty minutes to get it all down. After the draught the pulse fell to 92, and became stronger. 3, a.m.—He swallowed through a No. 8 catheter ℥ss. of brandy in a glass of water with gr. x. tinct. opii. He is afraid to sleep, when he dozes he starts and moans and roars most fearfully. However, towards morning he fell into a refreshing slumber, and at 7 o'clock he drank with ease a pint of beef-tea through the catheter. 9 a.m.—The tension of the neck very much less than it has been since his admission, but the abdomen if possible more tense. During the day he drank a quart of beef-tea, having in it twelve eggs and twelve ounces of whisky. The stupes were frequently renewed. Slept four hours during the night.

26th, Neck quite pliant; back and abdomen same as on yesterday; towards evening he became delirious, and his hearing was morbidly acute. Pulse at 10 p.m., 102.

27th, 9 am.—Pulse 100. Delirious. Suspects every one is attempting to poison him. During the day he took twelve eggs and one quart of beef-tea without the catheter. Slept at intervals.

28th.—Delirium much increased; he will not allow any one to attend him, not even his wife. Ordered the following mixture:—

℞. Quinæ sulphatis, gr. xxiv.; morphia sulphatis, gr. ij; aqua distil., ʒviij. M.; capiat ʒi. ter. horis, and the following draught to be given at 10 p.m.

℞. Chloroform, gt. xx.; liquor opii. sed. M. xxv.; syrupi croci, ʒj.; aq. distill., ʒvij.— M. ft. haustus.

During the night he got no sleep, but continued very restless.

29th, 9 a.m.—Pulse 108, weak; he fell asleep at 10 a.m, and slept sound until 5 p.m.; he got restless again during the night, and got at intervals ℥ 50 of tinct. opii., which calmed him towards morning, when he again slept.

30th.—He awoke at 8 a.m.; at 9 I saw him, delirium quite gone, recollects nothing about it. The neck and back quite relaxed, but complaining of the tension of his abdomen and of a severe shooting pain from his xiphoid cartilage to his spine, and of cramps in the thighs. I directed tobacco stupes to the belly and thighs, but did not blister the surface beforehand. The beef-tea, &c., to be continued.

July 1, 2, 3.—Getting gradually well, on the 4th he could open his mouth to the natural extent; the back and abdomen quite flaccid, in fact, I pronounced him cured, applied simple dressing to the blistered surfaces, and gave up the use of tobacco altogether.

In two days after he took a shivering fit, and afterwards went through a severe attack of pneumonia; however, he got quite well, and was discharged fit for work on the 12th of this month. —*Medical Times and Gazette, Sept.* 24, 1864, *p.* 326.

13.—TRAUMATIC TETANUS TREATED BY ICE TO THE SPINE.

Case under the care of Mr. ADAMS, at the London Hospital.

[The patient was a labourer twenty-eight years of age, suffering from gradually increasing tetanic symptoms following a wound from a nail under the left great toe.]

On admission, the jaws were firmly closed, so that he could only insert the extreme tip of the tongue between his teeth. He had a well-marked risus sardonicus, with pain and stiffness in the neck and back, and a tense, drum-like state of the abdominal muscles. The right lower extremity was perfectly rigid and extended. He was unable to flex the thigh or leg in the least. The ankle joint and toes were unaffected. On the left side the muscular rigidity was not quite so well marked, otherwise it was in the same condition as the other. He complained

of frequent pains shooting down the legs, and also pain in the epigastrium on coughing. The wound did not suppurate, but was surrounded by a slightly inflamed areola. The muscles of respiration and those of the upper extremities were apparently unaffected. He had no dyspnœa; his pulse was quiet; appetite good; tongue clean; and action of bowels regular. Mr. Heckford, the house-surgeon, ordered him a drop of croton oil, and ice to be continually applied along the whole course of the spine. Two hours afterwards he could protrude the tongue to the extent of an inch. During the night he did not sleep well; but a still more decided improvement took place as regards the closure of the jaws.

On the following day (April 8th) he was able to bend the previously rigid right knee, and separate the teeth at least an inch. The croton oil was repeated, as the first dose had not purged him thoroughly. Took half a grain of morphia at night, after which he slept well.

9th.—So far improved that he was ordered a chop and two pints of ale (he did not have this until the following day). The paroxysmal pains in the lower limbs had, however, increased in frequency and severity, causing him to cry out; but it was only when these occurred that he had any marked spasm of the muscles of the legs. Morphia repeated. Slept well.

[The rest of the report up to the 5th of May, is one of gradual improvement.]—*Lancet, July* 16, 1864, *p.* 67.

14.—ON BELLADONNA IN EPILEPSY.

By Dr. JOHN C. THOROWGOOD, Assistant-Physician City of London Hospital for Diseases of the Chest, Victoria Park.

John F., aged twenty, of florid aspect, well grown, but thin, and poorly nourished, has been obliged to leave service in consequence of frequent fits. Now (March, 1860) he has three or four of these fits in a week; when seized, he feels giddy, with what he describes as a "hot rising into his head;" he then loses consciousness and falls down, and his parents tell him that his limbs are for a time convulsed, though not more on one side than the other, and then they become stiff; he does not bite his tongue nor foam at the mouth. The fit passes off in ten or fifteen minutes, and he remains giddy and with a dull headache for several hours after.

Some years ago he was troubled with ascarides, but these seem to have quite disappeared, and no connection can be traced between this affection and the fits.

His appetite is very variable; the tongue large and clean; bowels open; at times he is sick and retches much; when he is

fatigued his limbs are apt to twitch; he often has headache and feeling of fulness, made worse by beer or spirits; at times his nose bleeds; he sleeps pretty well, but at times is very prone to dream; the fit sometimes takes him at night, when he cries out, and his limbs are convulsed; pulse 100, feeble; heart and lungs seem healthy: urinary organs present nothing unusual. Of late he has lived rather poorly, being ill off for means; and though he has by his own account had a variety of medicines, he is getting worse every week. The treatment consisted at first of a few pills of ext. hyoscy. and hyd. c. creta at night, with nourishing diet and a purgative when necessary. Whatever good this might have done in improving the stomach, it had no effect over the fits, and these seemed greatly to exhaust him. As he had already taken much medicine, I gave him now (about March 25) ext. belladonnæ, gr. ½; aquæ, ʒss.; M. ter. die.; and he is to leave off the pills and all other medicine. He took the belladonna for ten days, during which time he had no fit. He, therefore, was ordered to continue the same for another ten days, bringing him to April 15, 1860, without any fit.

At this period a very careful examination of the cervical spine detected a thickening over the upper vertebræ on one side, and this spot was rather tender. An emplastro iodinii was applied here. He says that he feels stronger and better, and now has no retching or sickness, still he has a wild excited look, and is evidently in a very nervous state. He got in place of the belladonna tinct. hyoscy. ℳxv., aquæ ʒss., ter. die, for a week, with some relief, and then I lost sight of him for a time. By the middle of May it seems he was much better, and went one Sunday for a very long walk with his father; on his return feeling very tired, his father treated him to some gin, after which he had a fit, the first since he has taken the belladonna. On my seeing him a short time after I ordered him the belladonna again for a fortnight in increased dose (gr. ¼, I believe, ter. die). The extract I knew to be very good and powerful; and as the patient was very uncertain in his visits to me, I feared to put him on a large dose. I did not see him again till March, 1861, when I hardly knew him, he looked so stout and well; he told me the fits had left him, and though at times he felt nervous, still he was now married, and able to earn a good living, and believed himself perfectly cured; his neck was now to all appearance sound and well.

This case cannot be called a severe case of epilepsy, still the fits were so severe and so frequent that the patient had to leave a good situation, and these fits remained unamenable to apparently judicious treatment. Once the patient was told he had a tumour in his brain, but what lead to this observation he

did not inform me, and with the exception of the slight thickening over the cervical spine, which the iodine plaister soon dispersed, I could not detect anything indicative of actual organic disease in any part of the brain or system generally. The patient attributed this thickening to a fall from a tree some years before; at first he scarcely heeded it, but during the last twelvemonth, while the fits have been increasing, this swelling has been unusually tender. No special sensation was ever felt in it immediately before the invasion of a fit.—*Medical Times and Gazette, July* 23, 1864, *p.* 86.

15.—ON ACUPUNCTURE IN FACIAL NEURALGIA.

By WILLIAM CRAIG, Esq., Ayr.

[A few years ago Mr. Craig published a paper, in which he endeavoured to establish the identity between the nervous and electric fluids. The treatment he recommends in facial neuralgia he considers an illustration of the truth of this position.]

I have long believed that the essential cause of facial neuralgia is a superabundance of nervous fluid in the nerve affected, and that the proximate cause, in the great majority of cases, is a congestion of the nerve, bearing some analogy to capillary congestion in inflammation. I came to the conclusion that the treatment for the one form of disease should bear some analogy to that employed for the other; that as depletion is requisite in capillary congestion, so depletion ought to be beneficial in nervous congestion. I consider that, as nervous power and electricity are identical, when a conductor is presented or brought nearly into contact with a nerve, the overcharge ought to escape, and with it the pain, just as a charged Leyden-jar is discharged by a conductor brought near it. Full of this idea, when on my way to a case of facial neuralgia about twelve years ago, I considered it a good opportunity to test my principles. The patient had been suffering from a severe throbbing pain shooting in the direction of the branches of the supra-orbital nerve. He had slept very little for some nights previously. I thereupon procured sewing needles, and inserted two or three of them near the place where the nerve issues above the eye. The pain went away immediately, and the patient was asleep shortly after. The pain has not since returned (August 28, 1863).

Since the above period I have treated a very large number of cases of this affection by the same means, and with the same success. I have taken notes of a few of them only, as there is little variety in the character or development of this affection, and none in the treatment.

Case 1, May 6, 1852.—J. R., aged forty-two, states that he has been subject to attacks of severe pain over and under the right eye for several years. The attacks generally continued for a month or six weeks in spring. He has now been ill for eight days, during which the pain has continued with very little intermission, and he has obtained scarcely any sleep. I applied the conductors above and below the eye, and the relief was immediate. He fell asleep in ten minutes afterwards. He told me he could not express the agony experienced at the onset of a paroxysm. In June, 1860, the pain had not returned.

Case 2, September 4, 1856.—Miss A. has been for four years subject to attacks of nenralgia during each winter. Each attack continued about six weeks. She now complains of a severe pain of a burning and shooting character over the right eye and right cheek. "She has been obliged to go up and down stairs all night, unable to find a resting-place." She has had various internal remedies without effect. The conductors were inserted, and the pain left immediately. June, 1864.—It has not returned up to the present time.

Case 3, June 28, 1857.—Miss Mc J. complains of a severe darting pain on the right side of the back of the neck and head. She has been suffering from it for a fortnight. The pain extends from a point two inches behind the ear to the crown of the head, at the situation whence issues the occipitalis major nerve. She has had no sleep for some nights. The conductors were inserted, and the pain went off immediately. June, 1864. —Miss Mc J. states that she has not been troubled with pain since.

Case 4, March 12, 1858.—W. H. has during each winter for the last ten years been affected with neuralgia of the left side of the face of such severity as to prevent him from working. He has tried very many medicines and has had the nerves above and below the eye divided, the cicatrices being quite distinct. He has found no benefit from these means. When first seen his head was enveloped in several layers of flannel, and he was surrounded with awnings to prevent the slightest current of cold air from reaching him, as this immediately induced an intense paroxysm. It was with great difficulty that the treatment could be adopted, on account of the extreme sensitiveness of the skin of the face, but as soon as the needles were applied he was partially relieved. March 13.—He is considerably better, but very weak. He gradually got stronger, and was soon at his work again. May 23, 1860.—He has remained quite well for the last two years, and has been exposed to all kinds of weather.

It must be admitted that every case of facial neuralgia which I have met has not been cured by this means. But this admits

of easy explanation; for in diseases of the nerves, as in those of other structures of the animal economy, there is sometimes inflammatory action and change of structure, producing neuralgic pain, in which case little benefit can be expected from acupuncture. In a case in which the mental nerve had been the seat of neuralgia, which had continued for ten years, the treatment by conduction was nearly fruitless. For twelve hours after the first insertion of the needles, the pain had completely gone, but afterwards it returned as before. In Case 4, however, which was very much of this character, the cure was complete. Cases which have little or no intermission, and which have existed for years, seem to be amenable to no form of treatment; at the end of so long a time there may be a change of nervous structure. It is necessary to allow the needles to remain applied for ten or twelve hours. In a case from the country about a month ago, the patient required to leave town in three hours; in two days the pain returned, but on the reinsertion of the conductors it was removed. After twelve hours he left, and did not return. It seems to be necessary not only to draw off the quantity of nervous fluid which produces the paroxysm, but also to take off for a time its normal supply, in order to break off the tendency to a return of the paroxysm. That this is the case may be concluded from the fact that sometimes the textures for a small space around the situation occupied by the conductors are benumbed, as if the cutaneous nerves had been for the time deprived of their proper supply of nervous fluid. It has been found that electricity passes from the free ends of the needles during acupuncture. Dr. Dantu states that a patient, immediately on the insertion of a needle, felt a gentle electric spark affect the tissues in the vicinity of the needles. M. Schwerger has observed the same phenomenon attend his operation as electricity was made appreciable by the deflection of the electric multiplicator. These electric phenomena, though not sought after to support preconceived opinions, but related as mere matters of fact, are exactly what might be expected from the principles here advocated. According to this fact—viz., that electricity escapes from the needle in acupuncture, thereby relieving the nervous congestion which causes tic—the induction of an electric current into a nerve subject to neuralgia would be followed by an aggravation of the pain. This happened in cases reported by Dr. Althaus (*Medical Times and Gazette*, August, 1858). He states that Duchenne recommended to cause a strong revulsion by producing Faradisation with the metallic brushes, conveying a very powerful electro-magnetic current through the part affected. But the pain by this proceeding was, according to Duchenne himself, "so atrocious," that after applying it to several cases he was obliged to desist. This

result of the experiments of Duchenne is exactly what might have been expected from the principle here advocated. The atrocious pain was just the consequence of sending into the already congested nerve a stream of the same element, an over-supply of which was agonising the patient. Electricity in the form of current has been frequently applied in neuralgic affection, but, so far as I know, with no favourable result. These French observers state that the electric phenomenon immediately consequent on the insertion of the needles is the result of the oxidation of the metal; but the effect is so instantaneous, the relief so speedy, that oxidation could not have begun before the cure was completed: the result is too great and too speedily effected to be accomplished by such a trifling amount of action, or, more correctly, no action at all.

For a considerable time after their insertion there is no impression of oxidation on that portion of the needle which is imbedded in the tissues, and long before that time the patient is cured.

It is no exaggeration that by this treatment the cure is immediate, as any one may satisfy himself by inserting a conductor of proper size in the proper place during a paroxysm in a pure case of facial neuralgia.—*Medical Times and Gazette, Sept.* 10, 1864, *p.* 277.

16.—ON NEURALGIA AND ITS CONNEXION WITH PAIN OVER THE SPINES OF CERTAIN VERTEBRÆ.

By M. Trousseau.

In the course of a clinical lecture on neuralgia, M. Trousseau makes the following observations: "If neuralgia occupied the branches of the trifacial, it was always at the point of emergence of the ophthalmic branches, and of the superior maxillary and the inferior maxillary, that the pain was felt most acutely; then came the frontal point where pain rarely failed, then the parietal point where it was more frequently wanting; lastly, the occipital nerve, although having no relation of origin with the trigeminal, is almost always affected. An extraordinary thing—inexplicable, but invariable in all the cases which we have carefully observed and noted—is that whether the trifacial were alone attacked, or the occipital nerve simultaneously affected, pressure on the spinous apophyses of the first two cervical vertebræ was *always* very painful, and in a certain number of cases immediately awakened the pain in the affected nerves. If the nerves of the brachial plexus were attacked, invariably pressure over the spinous apophyses of the last cervical vertebræ produced pain, and it was the same when we explored the vertebral column in the

case of intercostal, lumbar, and sciatic neuralgia." M. Trousseau lays it down as a rule, that in the various neuralgias the spinous apophyses are painful at a point nearly corresponding to that at which the nerve emerges, and not unfrequently the pain extends a little higher up the vertebral column.—*British and Foreign Medico-Chirurgical Review, July* 1864, *p.* 255.

17.—ON THE LOCAL APPLICATION OF CHLOROFORM IN NEURALGIA AND MUSCULAR RHEUMATISM.

By Dr. DUPUY DE FRENELLE.

Dr. Dupuy maintains that idiopathic neuralgia and muscular rheumatism are two varieties of the same disease, the nerves of common sensation being equally affected in both, and the causes of both being the same. The treatment by chloroform is not new; but Dr. Dupuy contends that no one has previously employed it in the same manner as himself, except the late Dr. Aran. Dr. Dupuy states that he has discovered the means of inducing every variety of local irritation by the contact of chloroform, from simple rubefaction to vesication, the revulsive action being necessary to the success of the plan, which is described as follows: The middle of a piece of fine and well-worn linen is introduced as a stopper into a phial of pure chloroform, which is inverted so as to impregnate with the fluid a more or less considerable portion of the compress, according to the extent of the skin to be acted on; the linen is then laid over the seat of pain, and with the palm of the hand is kept in close contact with the skin; but when the pain is limited to one spot, as in some cases of intercostal, facial, supra-orbital, or auricular neuralgia, the pressure of the thumb or forefinger is sufficient. Several successive applications should be made at once when the pain occupies more than one region, or when it exists along the entire course of a nerve, as in sciatica. In the latter case, the chloroform should be applied over the ischiatic notch, the head of the fibula, or the external malleolus, from the origin of the nerve to its termination. Dr. Dupuy brings forward in support of his practice a hundred and fifty cases, in which the largest number of applications of chloroform was twelve, and this number he has never exceeded.—*British and Foreign Medico-Chirurgical Review, July* 1864, *p.* 246.

18.—ON THE EMPLOYMENT OF LOCAL INJECTIONS IN NEURALGIA, PARALYSIS, AND OTHER AFFECTIONS.

Professor COURTY, of Montpellier, has published a note on the efficacy of local injections of strychnia in the treatment of

paralysis of the facial nerve. He injected a few drops of a solution of this alkaloïd along the course of the facial nerve, between its exit by the stylo-mastoïd foramen and its passage to the neck of the condyle of the lower jaw. The injection was repeated every two or three days, and three injections at the least, and six at the most, sufficed to remove entirely, in the space of from ten to fifteen days, every trace of paralysis in all the muscles of the face. The patients were a man aged fifty-six, a lady of twenty-five, and a young woman of twenty-two. In all three cases the cure was complete. M. Courty has also recorded a case of paralysis which lasted for a year, and had been ineffectually treated by various remedies, but which was cured by a few injections of strychnia, performed over the inferior extremity of the spinal cord. M. Luton, of Rhiems, has also called attention to the use of local injections in various maladies. He has successively employed a more or less concentrated solution of nitrate of silver in 12 cases of sciatic neuralgia, 2 cases of intercostal neuralgia, 3 of coxal neuralgia, &c. M. Luton has also mentioned a curious case of sub-orbital neuralgia removed by three injections of salt water. He has three times employed injections of tincture of iodine in parenchymatous goîtres; one case was cured, the other two were still under treatment at the date of the report. The applications of which this new plan is susceptible are very numerous, and may include the use of bichloride of mercury, arsenious acid, sulphate of copper, sulphate of zinc, and any other irritating substance which acts in the interior of the tissues in the same manner as one which is applied on their surface.—*British and Foreign Medico-Chirurgical Review, July* 1864, *p.* 241.

19.—MUSCULAR PAIN: A LOCAL ANÆSTHETIC.

The Bulletin Médical du Dauphiné supplies us with the following formula, which would appear to have been often found useful for the relief of the severe pain coincident with muscular rheumatism.

℞. Tinct. aconiti, ʒj.; adipis, ʒij.; chloroformi, ʒj.; morphiæ muriatis, gr. xv.

Mix the tincture with the lard, and add the chloroform and morphia in a glass mortar; keep in a wide-necked and well-stopped phial.

The cintment is applied with a feather over the seat of pain, and the parts are then covered with cotton wool and a waterproof cloth. This dressing should be repated every hour until relief has been obtained.—*Journal of Practical Medicine and Surgery, July* 1864, *p.* 300.

20.—PARALYSIS OF THE HAND AND FOREARM FROM SMOKING.

By Dr. A. J. H. Banks, Evercreech, Somersetshire.

[Dr. Banks considers that impaired nervous energy and even actual paralysis produced by the excessive use of tobacco are much more common than is usually supposed. All or most will probably endorse the assertion of impaired nervous energy resulting from excessive smoking, but cases of actual paralysis resulting from this cause must be very rare. We never remember seeing one which we could without any doubt assign to this cause.]

In February last I was consulted by P. S——. He was forty-eight years of age, tall, well made, and of rather spare figure. I found him suffering from what he called "dropped hand." It had lasted for some considerable time, and he had been under treatment for it; but, finding it get worse, had discontinued for some weeks before applying to me. Recently, owing to a good deal of numbness and uncomfortable sensation down the right side and right lower extremity, he began to fear he should be unable to pursue his work (which was that of gate-keeper on the Somerset and Dorset line), and this induced him to apply to me. I ascertained that he was an inveterate smoker, and, supposing this to be the cause of his ailment, I advised him to refrain from the habit altogether. I then gave him an ordinary purgative, placed blisters on the back and front of the arm and forearm, dressed these with an ointment composed of one grain of strychnine and one ounce of spermaceti ointment, and subsequently gave him one-sixteenth of a grain of strychnine in a pill three times daily. In ten days he had perfect use of the limb, lost all his disagreeable symptoms, and has been at his work regularly since that time without any signs of it returning. He tells me that he thought, and that the surgeon who was attending him was of the same opinion, that the loss of power arose from local external injury; and that it had been treated by cold lotions and wet bandages, assiduously applied, under which it became gradually worse. I think this mistake is not unfrequently made.—*Lancet, Sept.* 3, 1864, *p.* 280.

DISEASES OF THE ORGANS OF CIRCULATION.

21.—ON FATTY DISEASE OF THE HEART.

By Dr. Henry Kennedy, A.B., Physician to Sir Patrick Dun's Hospital.

Of the several symptoms of fatty heart few have been more noticed than the state of the pulse. When I spoke on this point

myself some years back, I thought well of using caution in what was then advanced. But I believe I may now say that of all the symptoms, it, as a single one, affords us the most assistance in the diagnosis, and for the sake of description may be spoken of under three aspects: the slow pulse, the natural one, as regards the number of beats, and the rapid one. I do not say anything of the irregular or intermitting pulse, as in my own observation it has been rare, and is common, I believe, to all states of the pulse, whether the heart be fatty or not.

More has been written about the slow pulse of fatty heart than any other variety, and it is unquestionably a very valuable sign, and always sure to catch attention. In this city it has been brought under notice by Drs. Stokes and Fleming, and our able Secretary, Dr. Richardson, has detailed some interesting cases. I would ask, however, is it usually present? I believe not. Within my own experience it has been very exceptional; but I am speaking now of a pulse under 40. When it does occur, however, there appear to me to be very good grounds for supposing that the true fatty degeneration exists, and the greater the degree of the latter the slower the pulse becomes. On a former occasion I expressed my doubts as to what state of the organ gave rise to the very slow pulse, but a more enlarged observation has enabled me to arrive at the conclusion stated. The comparative rarity, however, of this very slow pulse lessens, I must repeat, its value as a diagnostic sign.

But the pulse of fatty heart may be the very opposite to slow, being permanently quickened, and of course above the natural standard. On this point I can find only the slightest allusion in the works on diseases of the heart, the bare statement being all that is said on the matter, yet I am satisfied it is one of very great consequence, and still affords a wide field for accurate observation. It is some years now since this particular part of the subject was gradually forced on my notice by the fact, which has indeed been long known to physicians, that fat people are, *cæteris paribus* bad subjects for fevers. Whilst seeking some cause for this, I found that in such the heart had always more fat on it than was natural, and this state, coupled with what we know now of the effects of the fever poison, explains clearly the results. Two such instances I saw some time back, both ending fatally. One of these, a case of scarlatina in a gentleman close to forty years of age, was seen by Drs. Hutton and Nowlan; and the other a gentleman somewhat older, was attacked with typhus, and was seen by Drs. Corrigan and Lyons. In both cases the pulse became very rapid, and early, it is to be observed, in the attack. Dr. Stokes has in his able work called attention to the great importance of recognizing this state of the heart

in connexion with acute diseases. But it is the great and early occurrence of a rapid pulse, especially in men, to which I wish to draw particular attention. When this state of the heart exists, any disturbance of the system may set the pulse going at this rapid rate, and in Latham's elegant work will be found some marked instances of this; at the same time he avows there were no symptoms present to lead him to suppose the heart was fatty, though proved to be so after death. In fact, it does not seem to have struck him that there was any connexion between the rapid pulse and the state of the heart. But this, as it appears to me, is the point of importance to notice. It is now several years since a case got into the public papers and so acquired but too much notoriety. Some whom I address may recollect it, as being the case of a gentleman who, for an attack of gall-stones, got laudanum, necessarily in very full doses, which acted so powerfully as a narcotic that it required some hours' persevering efforts to recover him. When recovered, he came up to Dublin a few days later, where he was seen by different medical men, who could discover nothing wrong but a quickened pulse. In this state he lived more than a week, and then died. On post-mortem examination the heart was found fatty—a state which had not been suspected previously.

But it is not in acute disease alone that a great rise in the pulse, and in connexion with fatty heart, may be found. There appear to me very good grounds for supposing that in the progress of some cases the pulse becomes quickened *and remains permanently so.* On this point, however, I would speak with caution; not because I doubt the fact, but because its complete elucidation demands a kind of experience which it is hard to acquire—I mean an experience which extends over years. One such case which has been seen by Dr. Stokes has, however, occurred to me. A gentleman, now above forty, and of a full habit of body, has been under my observation for eight years. Till about four years ago the pulse remained at the healthy standard, beating 70 in the minute. At that time, and just after a severe cold, I observed that it did not fall, as was to have been expected, for the other symptoms had disappeared, and from that time to the present the pulse has never fallen below 90, and I suspect never will. There is not the slightest reason to suspect any lurking disease in the lung which might keep up the pulse, and there is no morbid sound to be heard over the heart. But there are grounds for believing that gout is in his system, and when older he will very probably have the disease.

In another case, a woman of 50, whom I saw with Mr. McCarthy of Capel-street, I suspect the same thing has occurred. When I saw her she laboured under pleuritic effusion, from

which she entirely recovered, but the pulse has never fallen to the natural beat, and is now capable of being raised from the slightest cause. Neither is there in this case any ground whatever for suspecting that the lungs are affected, whilst there are good reasons for supposing that the poison of gout is in the system. This part of the subject is still very open for investigation.

I have reserved for the last place some remarks on the kind of pulse in connexion with fatty heart, which I believe to be of far the greatest consequence to recognize, and for the simple reason that it is by much the most common—I mean when the pulse beats neither too slow nor too quick, but at the healthy standard. When speaking on this point in 1859, I did so with some reserve. Since that period, having become connected with Sir Patrick Dun's Hospital, my opportunities for observation have much increased, and I am now able to state that the diagnosis can very generally, if not always, be made. It will be recollected that the great probability is you will have no morbid sound to guide you at all, whilst the pulse will be beating at 65 or 70. Under such circumstances, what then can be a guide? The answer is the kind of pulse which would be caused exactly by the state of the heart described already this evening, as being much the most common to meet. The organ being enlarged, if I may so speak, the pulse is so likewise, at the same time that the beat to the finger does not convey the idea of strength, nor when we call to mind the state of the heart could we expect it. The pulse in fact is large and compressible, passing sedately as it were under the finger, and to it may be well applied the words of John Hunter, that it is action without power. When, then, such a pulse is found, we are now, I believe, justified in concluding that fatty heart exists. In saying this it is not to be supposed that we are to exclude other symptoms if present, for every point is to be seized in order to render our diagnosis the most accurate, and the question to be solved is avowedly a very difficult one. All I would convey is this; that in these cases, and mainly from the absence of valvular disease, other symptoms are very apt to be so obscure as to be entirely overlooked, but that the pulse and its characters are just as likely to be present, and so afford us the most valuable aid.

To enter further here into the diagnosis of fatty heart would be quite foreign to the purpose of the present paper. Neither, with two exceptions, is it my intention to speak of the causes of the disease; but I must notice one which has year after year been gradually forcing itself on my attention till it has now reached the strongest conviction in my mind—I mean the habit of smoking, which, I believe, I have traced in many instances to have been the predisposing cause of the disease. No one is

more aware than myself of the difficulties which beset a question of this sort, nor the great opposition which, for obvious reasons it is likely to meet. Still the opinion has not been taken up hastily, nor, as I think, without such proof as the subject admits of. All will recollect that within a very few years a great paper war was carried on in the pages of the Lancet on the effects of tobacco, and the opinions expressed were sufficiently contradictory. Amongst them all, however, I did not observe one point noticed which seems to my mind of great importance in this question. It is the fact that if any one, no matter what his temperament may be, gets out of health, so that the powers of his system are lowered, he must then either lessen his smoking or give it up entirely. I have met no exception to this statement, which every one may test for themselves—as, for instance, in cases of paralysis, no matter how slight they may be. From the fact, however, I conclude that tobacco, besides other effects, is a depressor of the nervous system, and that there is a constant antagonism going on between it and the healthy state of the constitution, and when used too freely it ultimately engenders a state of health which is very apt to be followed by a fatty heart. At any rate, whatever the explanation be, the fact is as stated above, and I have seen now too many cases of fatty heart, in what are called heavy smokers, to have any doubt on the matter. Though more might be said on this point I must hasten on.

Want of proper exercise and sedentary habits, are mentioned by all writers as leading to the disease. There is one way, however, which, though very obvious when mentioned, seems to myself particularly injurious—I mean men allowing themselves to be constantly carried about in their carriages—passive exercise as it is called—which is a kind of contradiction in terms, at least it appears so to me. To what else, I would ask, can we more fairly attribute the fact which must have struck all present—I mean the way in which the leaders of our own profession have been cut off within the last few years; and what is still more remarkable, is the fact that out of six or seven of them, three actually suffered from that very rare disease—angina pectoris—and they were men in or about sixty years of age. To us, as physiologists, and therefore knowing something of the laws which regulate health, I believe the point brought under notice to be one of considerable moment, but I cannot pursue it further on the present occasion.

It was my intention to have entered at some length into the treatment of fatty heart—I mean in its earlier stages—when, I believe, it may now be very frequently, if not always, diagnosed; but time forbids. I can therefore only state in a general way that I believe the disease quite capable of being stayed, if not cured.

When I spoke on this point in 1849, I gave one case in which there was every reason to suppose a weak heart existed, and in which by perseverance for some months, a cure either was or seemed to be effected. The lady lived eleven years subsequently and died of a different disease. To this case I could now, did time allow, add others, where I cannot doubt the disease has at least been stopped. In our efforts to cure it, it is not to be forgotten that, generally speaking, there is no valvular disease to contend with, and the mere deposit of fat cannot be looked upon as an insurmountable obstacle to cure. In fact, whilst fatty heart may in one aspect be considered as serious as any other organic disease of this viscus, it may on the other hand, be placed as the most curable of its several affections.

As to any specific line of treatment, I know of none. The question resolves itself into those great general principles which should guide us in our efforts to improve the general health, and must consist more in attention to what is known as hygiene than to any specific medicines whatever. A healthy state of the digestive organs and skin, a regulated quantity and quality of food, proper clothing, and above all, a well-directed system of bodily and daily exercise, are the measures we must look to. It must, indeed, be admitted that cases do occur where directions of this kind cannot, or rather will not, be followed, for many would rather take the most nauseous medicines than restrict themselves in diet or alter their habits; and that the plan is one of restriction, and demands great firmness and discretion on the part both of patient and medical adviser, admits of no doubt. Still difficulties of this kind must be overcome, and offer certainly no reasonable objection to a plan of treatment which has physiology for its basis, and the certainty of at least benefitting, if not curing, the patient.

Whilst following it, however, care must be taken that it be not pushed too fast. "*Festina lente*" is to be the rule, and time must form an important element in the treatment; otherwise the constitution of the patient—and each must of course be studied separately—may be strained too much, and serious injury follow. A very striking, or what might better be called an exaggerated example of this, has recently occurred in the person of the celebrated Heenan, whose constitution, there can be scarcely a doubt, suffered from the treatment he was subjected to before the last prize-fight, as in the course of eleven weeks he was reduced a stone and a half in weight, very nearly two pounds a week. I cannot, however, quite agree with the writer in the Lancet, who, when speaking on this subject, draws a distinction between muscular and vital force. It is not easy to understand how the muscular system should be so developed and powerful, as it was admittedly in Heenan, and yet the vital

force be so impaired. But enough of this, if only a caution be taken from the circumstances.

In concluding these remarks, which, from the extent of the subject, forced me to omit much, I would just repeat that my chief object has been an endeavour to advance the diagnosis of fatty heart in those cases—by much the majority—where no valvular disease exists; and that the conclusions arrived at are based directly on the study of the morbid anatomy of the organ as found in this disease—*Dublin Medical Press, April* 20, 1864, *p.* 404.

22.—ON THE EFFECT OF TOBACCO ON THE HEART.

M. Decaisne, in a communication addressed to the Academie des Sciences, exhibits another clause in the heavy bill of indictment against the use of tobacco. He states that in the course of three years he has met, among eighty-eight inveterate smokers, twenty-one instances of marked intermittence of the pulse, occurring in men from 27 to 42 years of age, and not to be explained by organic lesion of the heart. The absence of such lesion or other condition of health capable of inducing intermission of the action of the heart, and the fact that in nine of these instances, in which the use of tobacco was abandoned, the normal action of the organ was restored, M. Decaisne believes will justify him in concluding that, in certain subjects the abuse of tobacco may give rise to a condition which may be termed "narcotism of the heart," characterised by intermission in the movements of that organ and in the pulsations of the radial artery; and that, in some cases, a suspension or diminution of the practice of smoking is sufficient to cause an entire disappearance of this irregularity.—*Medical Times and Gazette, June* 18, 1864, *p.* 671.

DISEASES OF THE ORGANS OF RESPIRATION.

23.—ON THE THERAPEUTICS OF CONSUMPTION.

By Dr. Richard Payne Cotton, Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

There are few maladies in which Medicine has borne so variable a reputation as in consumption. We have heard over and over again of "specifics" for this disease; and over and over again has the honest but disappointed physician expressed his conviction that phthisis is scarcely, if at all, under his control.

In the present communication, I shall endeavour to show that whilst, on the one hand, we may confidently assert that at present, at least, we have no *specific* remedy for consumption,

we may, on the other hand, as confidently assert that our materia medica offers a number of auxiliaries of more or less value and importance in the treatment of this disease.

With a view to determine experimentally the comparative value of different therapeutic agents in consumption, I resolved, some five or six years ago, to prescribe certain substances to a given number of my hospital in-patients, taking care that such cases were free from all acute symptoms, as well as from any particular complications requiring special treatment. Each of the following substances was thus administered to twenty-five patients, this number having been chosen as sufficient, perhaps, for the purpose, and as possessing the advantage of at once showing a *percentage* simply by multiplying by four; viz., phosphorus; liquor potassæ; hydrochloric acid; iodide of iron; iodide of potassium; chloride of sodium; vinum ferri; glycerine; sesquichloride of iron; chlorate of potassa; quinine; phosphoric acid. The experiments were published from time to time in the Medical Times and Gazette; but hitherto they have not been compared with each other, neither has any attempt been made at a general conclusion.

Here I may as well anticipate one or two very possible objections to my experiments. Some may consider that the number of cases was too small to show any satisfactory result; whilst others may suggest that there could not have been sufficient similarity in the cases themselves to render the several conclusions trustworthy. To the first objection I would reply, that it has taken me five years to observe the effects of these twelve substances upon the number of cases I determined upon; and as there is a limit not only to life, but also to the time and capacity for working out such observations, I felt it was impracticable to augment the number of patients for each experiment. And to the second objection I would remark, that, as it is no inconsiderable difficulty to discover even *two* consumptive persons strictly alike in all their symptoms, the attempt to find *twenty-five* parallel cases would have been fruitless. I may, however, at once state that I am desirous that my experiments should be taken only for what they are worth. They do not profess to be absolutely conclusive, but are simply intended as certain additions to that general stock of therapeutical facts, which when put together and thoroughly sifted, may, some day or other, lead to the discovery of important truths.

Phosphorus in many cases proved a good tonic and stimulant, increasing both the appetite and strength of the patients. In a few instances, however, it obviously disagreed, producing nausea, a distaste for food, and abdominal derangement. Four of the patients (three of whom were in the first, and one in the last stage of the disease) left the hospital materially im-

proved in every respect, and apparently with their general health restored; but several of those who derived no benefit from the phosphorus improved afterwards under other treatment. It was administered according to the formula of the Prussian Pharmacopœia, in which four grains of phosphorus are held in solution by an ounce of olive oil. Of this solution, from five to eight minims were given in a little mucilage twice or three times a day. Five minims contained one-twenty-fourth of a grain of phosphorus.

Liquor Potassæ, given in doses of fifteen minims two or three times a day, altogether failed to support its ancient reputation as a "deobstruent" in phthisis. It seemed generally to be inoperative; and a considerable number of patients, in whom it had produced no visible effects, improved afterwards under different treatment.

Hydrochloric Acid, on the other hand, was productive of very marked benefit. In doses of ten or fifteen minims of the dilute acid two or three times a day, it generally increased the appetite, and lessened many of the urgent symptoms, especially excessive perspiration and pulmonary secretion. Under its continued use for several weeks, many of the patients materially improved.

Although, in certain dyspeptic conditions, the alkalies, in various combinations, are oftentimes of very great use in the treatment of phthisis, it appeared that the acids *separately* are far better suited to the so-called tubercular "crasis," than the alkalies *separately*. Several patients, who had made no progress under the liquor potassæ, improved very much when this was changed for hydrochloric acid; and four, who had been taking the acid with advantage, but to whom liquor potassæ was given as a change, urgently begged to return to the acid. In very few instances did the hydrochloric acid disagree; now and then it appeared to cause a little gastric pain, but it was never necessary permanently to abandon its use. I have reason to believe that the other mineral acids will be found as effective as the hydrochloric. The circumstance, however, that the free acid frequently occurring during healthy digestion is the hydrochloric, and that this acid is the well-known solvent of the plastic constituents of the food, made me select it in the present experiments; but I have often prescribed both the nitric and the nitro-hydrochloric acids in the wards of the hospital at Brompton with the same good result.

Iodide of Iron, in doses of a drachm of the syrup two or three times a day, appeared greatly to benefit several of the very early cases, and was particularly serviceable in some which exhibited evidence of chronic secondary pneumonia. In a few instances it was discontinued, on account of its producing headache, with dyspeptic symptoms; but, as a general rule, it seemed to agree

with the patients. Under its influence, many gained materially in weight.

Iodide of Potassium, which was at one time held in great repute in the treatment of phthisis, seemed remarkably ineffective in most of the twenty-five cases in which it was employed. Occasionally it gave rise to some dyspepsia, but more commonly its administration was unattended by any decided result. Only six cases materially improved during its use; and, in nearly every instance in which it was given, the patient's weight sensibly diminished.

Chloride of Sodium was prescribed in doses of from one to three drachms dissolved in water, two or three times a day. It was observed that one drachm could generally be taken without producing nausea; that, in a few instances, two drachms caused a slight degree of sickness; whilst three drachms sometimes gave rise to actual vomiting; although, as a general rule, these larger doses, when gradually arrived at, did not disagree with the stomach. A larger dose could be taken after meals than when the stomach was empty. In only three cases out of the twenty-five was thirst complained of. In this experiment, a fair number of patients increased in strength and appetite, justifying the conclusion that, in many such cases, common salt deserves to rank as a tonic.

A large amount of chlorides was always found in the urine of those who were taking the salt; but so little in relation to the quantity administered, that much must either have passed off by the bowels, or remained in the system. The search after chlorides led to the discovery that the urine of all consumptive patients, even of those in the last stage of the disease, contains such compounds in considerable quantity.

Steel Wine proved a most useful auxiliary in the treatment of a considerable number of patients. It seldom disagreed, but tended rather to increase the appetite and improve digestion. In the cases of children and young persons, especially when combined with cod-liver oil, it was remarkably efficacious. The dose varied from two drachms to half an ounce, and in a few cases to an ounce, once or twice a day. From half an ounce to an ounce of the vinum ferri, taken immediately after dinner, is, I believe, one of the best means of administering steel in phthisis. In this way, it seems to interfere less with the function of digestion, and to be more easily absorbed into the system.

A well-known French author, M. Trousseau, has recently asserted his belief that steel, so far from benefiting, not unfrequently engenders phthisis. Has he not here failed in the distinction between the *post* and *propter hoc*? Unquestionably, many become consumptive in spite of all the steel we can get them to take; but, if consumption were connected with steel-

taking, assuredly this disease would be even more common than it is!

Glycerine has been much extolled by some writers as a remedy for phthisis. I gave it in doses of from one to two and occasionally three drachms twice and sometimes three times a day. In five of the twenty-five cases, it either caused sickness or otherwise disagreed. Sometimes it seemed to relieve the cough; but few of the patients derived any material benefit from its use, and very few of them gained anything in weight whilst taking it. Several, who made no progress under the glycerine, improved subsequently under cod-liver oil. Many observations were made in reference to the comparative usefulness of these two agents, the result being invariably and very considerably in favour of the oil. In ordinary cases of phthisis, indeed, I believe glycerine to be of litlle use.

Sesquichloride of Iron conduced to some very happy results. A large number of cases improved under its use; and six patients in whom the disease was decidedly established, after having taken it for several weeks, left the hospital with their health restored, and in a condition to resume their respective occupations. Were I to be asked which of the twelve remedies I had found most generally adapted to the ordinary run of consumptive cases, I should say the sesquichloride of iron. For several years I have been in the habit of prescribing it in doses of from ten to fifteen minims twice a day; and the mixture of the sesquichloride of iron is one of the most frequently employed formulæ of the Consumption Hospital *Pharmacopœa*. In private practice, it may be agreeably taken in combination with lemon or orange syrup; and in this way it may be continued with advantage for many weeks, and even months.

Chlorate of Potassa, like glycerine, has won various opinions as to its influence upon consumption. By one physician it has lately been considered even as a *specific*, whilst by others it has been deemed altogether a failure. After a careful analysis of its effects in the twenty-five cases, I came to the conclusion that it was very far from a *specific;* and that its usefulness was seldom apparent, except in those cachectic cases in which it and allied remedies are frequently serviceable.

Quinine, in doses of one or two grains twice and sometimes three times a day, although well suited apparently to a few of the twenty-five cases, generally produced disappoinment; its effects being, as a rule, inferior to those of many other tonics. It would seem that quinine, like chlorate of potass, is chiefly useful in a certain class of cachectic patients, in which, irrespective of the tubercular condition, such agents are very generally prescribed. Several of the patients, however, who had scarcely

benefited by the quinine alone, improved subsequently under the combined influence of quinine and iron.

Phosphoric Acid was prescribed in doses of fifteen minims two or three times a day. In three or four cases, it seemed to produce pain in the bowels, with nausea and loss of appetite: although, as a general rule, it agreed very well. Only three cases improved materially under its influence; whilst several of those in whom there was a moderate improvement benefited much more under other treatment. Phosphoric acid may be classed amongst the mineral acids as a general tonic in phthisis, but seems to me inferior to some of them, especially the *hydrochloric*.

The following table shows the general effect of these various agents upon the twenty-five cases in which they were administered.

	Considerably improved.	Slightly improved.	Not improved.
1. Phosphorus	4	5	16
2. Liquor Potassæ	1	2	22
3. Hydrochloric Acid	11	6	8
4. Iodide of Iron	10	4	11
5. Iodide of Potassium	6	5	14
6. Chloride of Sodium	8	6	11
7. Vinum Ferri	13	3	9
8. Glycerine	4	2	19
9. Sesquichloride of Iron	12	5	8
10. Chlorate of Potassa	5	4	16
11. Quinine	7	5	13
12. Phosphoric Acid	3	8	14

It must not be forgotten, in estimating the therapeutic value of these different substances, that this is illustrated by the table rather *comparatively* than *absolutely*; since we must not exclude from its proper share in the result the combined influence of hope, rest, good diet, and general hygiene, under which, even by itself, many phthisical cases are well known to undergo very considerable improvement. The figures, indeed, can only be taken as a fair expression of the *comparative* usefulness of the various agents as therapeutical auxiliaries to general treatment.

The experiments to which I have thus briefly alluded, and which will be found more fully described in my papers in the *Medical Times and Gazette*, appear to be suggestive of the following general conclusions.

1. Since, during the administration of each one of the agents described above, several cases of phthisis were observed to run through the various phases of the disease, some even to a fatal termination, it is obvious that, whatever the amount of benefit

which in some cases followed their use, no one of such agents deserves the title of "*specific.*"

2. It may, therefore, fairly be concluded that the good effected by any of these agents was due to their respective tonic and upholding influence upon the general system.

3. In the majority of phthisical cases, steel (especially the sesquichloride of iron) and the mineral acids appear to be the most effective; but tonics generally are productive of more or less improvement.

4. Since, however, even steel and mineral acids, as well as other useful tonics, are undoubtedly inert in a certain proportion of cases, it is not improbable that there are varieties or modifications of phthisis, each of which may require a particular treatment. As there are special varieties of many other diseases, requiring special modes of treatment, and yielding to none other, it is possibly the same with consumption.

I would observe, in conclusion, that I think we are too apt to consider and treat phthisis as a separate and always similar disease, disregarding the almost endless varieties it presents. Whether such varieties are dependent upon original differences in the nature of the disease itself, or are determined by peculiarities in the individuals it may attack, we at least have before us a large field for experimental therapeutics. My own idea is, that the time is not distant when observation and experiment will show that, under certain at present obscure conditions of system, phthisis assumes definite and special forms, each of which requires definite and special management; and that the "therapeutics of phthisis," which many may now consider both unsatisfactory and unpromising, will contribute, some day or other, to great and unexpected results. I am not so sanguine as to look for a *specific* in consumption; but that the disease will ultimately prove as amenable as many others to proper management, is, I hope, not a mere day-dream.—*British Medical Journal, June* 25, 1864, *p.* 683.

24.—ON THE INFLUENCE OF LIVING IN THE OPEN AIR IN THE TREATMENT OF PHTHISIS.

By Dr. JAMES BLAKE, of San Francisco, California.

Dr. Blake relates the particulars of seven cases showing the influence of what may be called the out-of-door plan of treating phthisis. The treatment pursued was to direct the patients to live entirely in the open air during the summer months, at an elevation of from three to five thousand feet above the sea, in the coast range of the mountains of California, where the temperature is very equable, and no rain falls for five or six

months. This part of the world seems peculiarly well adapted for carrying out the treatment, for when the rainy season arrives, a sea voyage of four or five days may take the patient to Northern Mexico, where the winter climate is exactly analogous to the summer climate of San Francisco. The patients are directed not even to sleep in tents, but out under the trees, and the diet is plain camp fare, sufficient game being found in the mountains to keep the camp supplied. Dr. Blake believes that when the patients are able to avail themselves of the advantages of the summer climate of California, and of the winter climate of Mexico, there are few cases that cannot be cured, except those in which the destruction of lung tissue is already too extensive. In the instances related by Dr. Blake, the patients had tried the usual remedies without any benefit, and the constitutional and local symptoms were carefully investigated, and the weight of the body was ascertained from time to time. The increase of weight is a more evident and tangible indication than any other of the success of the treatment, and this favourable result was observed in all Dr. Blake's cases.—*British and Foreign Medico-Chirurgical Review, July* 1864, *p.* 249.

25.—ON THE USE OF BROMIDE OF AMMONIUM IN HOOPING-COUGH.

By Dr. R. Peel Ritchie, Extra Physician to the Royal Edinburgh Hospital for Sick Children, and Physician to the Royal Dispensary.

[This drug was first introduced into practice by Dr. Gibbs, of the Westminster Hospital, and has since been extensively tried and commented on by many physicians and writers. Its action upon the throat and upper part of the respiratory mucous membrane seems chiefly to entitle it to notice.]

I commenced to use it in January last, and have since frequently prescribed it. The general result in the cases to which it was given has been relief to the spasmodic cough, and to the characteristic symptom of pertussis—the hoop, but I cannot say that the effect has been uniformly successful.

In prescribing a new remedy it is to be desired that we ascertain in what kind of cases benefit may be expected, and more especially is this desirable when a new agent is suggested for the treatment of such a disease as hooping-cough, for which probably more specifics have been recommended than for any other malady.

Dr. Gibb does not allege that it is invariably successful, but that it is exceedingly valuable in many cases. Professor Har-

ley of London University, who has used the remedy extensively remarks that it "does not appear to act by removing the cough, but simply by preventing the occurrence of its chief and most disagreeable symptom, the hoop."

The result of my observations of the remedy have not been so favourable as those published by Dr Gibb and Professor Harley. I shall therefore endeavour to indicate shortly what I have observed.

1st, As to the ages of those treated. The youngest was three months, the oldest, four years; the average age twenty-three and a half months. In my experience the remedy appears to be most successful in children whose age exceeds two years.

2nd, As to result. In nearly all the cases there was marked relief to the hoop after a few doses had been given. This was very noticeable in those instances in which the hoop was very frequent; the report given shortly after first administration in several of such cases was that the child was much relieved.

Infants are probably more liable to bronchitic attacks, and in them uncomplicated pertussis is more rarely met with than in older children. For this reason it possibly is that the bromide is less beneficial in those under the age of two years than in those above that age. In three of the cases death occurred—in two from bronchitis, and in the third from congestion of the lungs; but in all these the hoop had been relieved, especially in the two younger, aged three months and twenty months. In the eldest, aged two and three quarter years, the relief was not quite so apparent.

3rd, As to the dose. The quantity I have generally given has been from three to twelve grains a-day, in divided doses, administered every six hours.

These quantities are less than those prescribed by Dr. Harley, who gives a grain for each year, every eight hours, but this is regulated by the constitution and development of the child. In children of advanced age he gives large doses. In the *Lancet* of January 16, 1864, the particulars of two cases are given, the one a girl aged nine, took twenty-seven grains a day apparently week; the other, a boy aged six, took eighteen grains daily for the same time. In both very speedy relief occurred. In the same journal instances of a child aged three years taking eighteen grains, and of another child aged four, taking twenty grains a-day are given.

Dr. Gibbs gives two or three grains thrice daily to infants, and four, eight, or even ten grains, as frequently to older children.

I have not prescribed a larger dose than twelve grains in the day, but I have given that amount with benefit in cases of the age of four, three, and two and a-half years. Eight grains a

day I have given to children two and three years old. In one instance a child of two years old, by mistake on the part of its mother, was given without injurious effect, fifteen grains a-day for four days, but this large dose was not attended by a better result than usual. Drs. Gibb and Harley prescribe it thrice daily in water. I prefer giving it four times a-day with syrup. If bronchial irritation exists, a mixture of ipecacuanha and squill is required. Dr. Gibb is also of this opinion. In complicated cases the administration of an emetic I find to be frequently necessary.

4th, In what cases is it suitable? In the *Lancet* of September 26, 1863, it is stated that Dr. Gibb had, in 1862, used the bromide in the treatment of hooping-cough largely, and that twenty-two children were mostly cured by its administration at the West London Hospital. Notes of several additional cases are given, and it is remarked as that physician's opinion, that "like many other remedies it could not be expected to cure the disease invariably," and as a permanent remedy he had more faith in his plan of treatment of dilute nitric acid and the topical application of nitrate of silver to the larynx. It is not stated, however, in what cases he finds the bromide to be most suitable.

In the observations in the same journal upon Dr. Harley's cases, it is said, "Dr. Gibb discovered in the bromide of ammonium a most valuable pharyngeal and laryngeal anæsthetic, and it is this special character of the remedy which Dr. Harley has endeavoured to turn to practical account in the treatment of pertussis." Whilst Dr. Harley recognises that the benefit is to the hoop alone, there is no indication as to the cases in which he finds the remedy applicable.

It is left, therefore, for each practitioner to determine for himself in what cases the remedy is suitable. Having used the preparation in upwards of twenty cases, if I may be allowed to express an opinion upon this head, it would be,—that the great efficacy of the drug is in uncomplicated cases,—that in those complicated with acute bronchitis or pneumonia, the benefit is so trifling that I prefer other methods of treatment, —that in my experience, infants are more liable to such complications than children above the age of two years. To this I consider it to be due, that in the former the benefit from the remedy is less than in the latter—for an acutely congested condition of the air-passages appears to lessen the effect of the bromide as a laryngeal anæsthetic. That the more frequent the paroxysms of hooping, the more marked and rapid is the relief; that greater relief appears to be experienced in those of some continuance than in recent cases; and, lastly, that when chronic bronchitis is present, the bromide should not be given alone,

but combined with squill and ipecacuanha mixture, and occasionally with an emetic.

I have not observed that the bromide of ammonium has any tendency to cause nausea, or that it has any effect on the mental powers. In none of the cases in which I prescribed it have convulsions occurred.—*Edinburgh Medical Journal, June* 1864, *p.* 1096.

26.—ON GAS FUMES IN PERTUSSIS.

M. GUERARD has brought under the notice of the Paris Hospital Society the new treatment which has been proposed for pertussis, consisting in the inhalation of the fumes arising during the purification of gas. The pulverised substance, chiefly composed of lime and oxide of iron, which has served for this purification, is spread on the floor of one of the courts of the factory, in order that it may be revivified and re-employed. During this process large quantities of ammonia and volatile oils are disengaged. It was found that children suffering from the chronic stage of pertussis, and who happened to be living in this part of the factory, were so rapidly cured that numbers of others suffering from the affection were sent there, and in many of these marked success attended the experiment. M. Guèrard learnt these facts when called in to inspect the factory, in consequence of the neighbours having complained of the nuisance caused them by these fumes. He suggests that the beneficial influence which they seem to have exerted in these paroxysms of pertussis may be analogous to that derived from caustic ammonia in fits of nervous asthma. M. Blache stated that he had met with two cases of children who had been sent to this factory, only with the result of aggravating the paroxysm; and several trials which he had made with some of the residue of gas purification, obtained from the factory, had proved of no avail. M. Bergeron, having knowledge of a case in which rapid amelioration had ensued, sent three other children to the factory, without any benefit being derived. M. Barthez had met with two cases in which the remedy seemed very efficacious, the disease being cured in the one in three, and in the other in four and a-half weeks from its outset, therefore in a period of time far shorter than usual. M. Roger stated that he had been called to a child who had contracted pneumonia while employing this remedy, due probably not the gas inspired, but to exposure to the cold current of air of the factory. In two other cases he had found the remedy quite inoperative after a fortnight's trial. Nevertheless, he obtained a large quantity of this residue, liberated it in one of the wards of the Children's Hospital, and daily exposed many children, in whom the disease was on the

decline and unattended with fever, to these fumes; but no benefit whatever resulted, and M. Roger is of opinion that at this stage of the disease simple change of air is a far preferable remedy.—*Medical Times and Gazette, August* 27, 1864, *p.* 238.

DISEASES OF THE ORGANS OF DIGESTION.

27.—ON THE DIAGNOSIS OF ABDOMINAL SWELLINGS IN RELATION, CHIEFLY, TO DILATATION OF THE COLON.

By Dr. HENRY KENNEDY, A.B., Physician to Sir P. Dun's, and the Cork-street Fever Hospitals.

[The present paper is not intended to embrace the wide field of abdominal tumours generally, but only a single affection giving rise to abdominal swelling. The writer especially refers to a means of diagnosis which has not received all the attention it merits, and which frequently affords most valuable aid to diagnosis, viz., the mobility of abdominal tumours as caused by the act of respiration.]

All are aware that some of these tumours can, by the pressure of the hand, be moved about. But it is the movement caused by inspiration of which I speak. The first occasion on which I noticed this occurred some years since, in the lifetime of the late Surgeon Neville. He had asked me to see a man who had a tumour in the epigastric region, of the nature of which he was doubtful. The question lay between a malignant tumour in the stomach and aneurism of the aorta. As the patient lay on his back, I thought I observed the tumour moving; and on closer scrutiny there could be no doubt of the matter, nor that it was due to the act of inspiration; and it at once struck me that it was a means by which a correct diagnosis might be made; for it was obvious that if the tumour were an aneurism no movement of respiration could affect it; but if it were in the stomach this might occur. Acting on this, the diagnosis of a tumour of the stomach was made, and the result confirmed the truth of this idea, for, when the man died, some months later, malignant disease of the stomach was found. It is worth noting, that, between the time of my first seeing this man and his death, the tumour lessened materially; and this seemed due to the great and, possibly, rapid ulceration which had occurred in the diseased mass. Since this case came under my notice I have had many opportunities of confirming the point. It is quite obvious that its value is confined, in a measure, to the upper third of the abdomen, the depression

of the diaphragm being its cause; and it can only affect an organ which admits of some mobility, as the stomach and transverse colon. But the opposite of this may also be of use to us to know; for a tumour not affected by the act of inspiration must then belong to one of the parts which are fixed, as, for instance, aneurism of the aorta. Since I observed this sign it has not fallen to my lot to meet a case of abscess of the liver coming forwards. But there is little doubt that in such a case, and with a swelling perceptible, the act of inspiration would cause the tumour to move; and that if adhesions formed between the tumour and the parietes this sign would then cease —a point of no little consequence to determine, as bearing directly on the treatment. It may be observed, in passing, that the degree to which movement can be given to the parts close to the diaphragm varies considerably with the individual. Those who have the chest long, from above downwards, are able to depress the diaphragm, and necessarily the neighbouring organs, much more than others. This, indeed, is only what we should expect from the varying capacity of the chest in different persons. But it is curious to what an extent it exists; and in exact proportion with this will be the intensity of the sign to which attention is now called.

It is not to be understood, however, that the sign is entirely limited to the upper part of the abdomen. It may be well marked in the middle third, of which I have seen different examples. In one of these, a boy of fifteen, whom I had in Dun's Hospital for some time, a tumour, the size of a small apple, lay on the left side, betwen the floating ribs and the umbilicus, but nearer the latter. As the boy lay on his back, the tumour was quite visible, and could, of course, be felt; and, on making him inspire, it glided downwards one inch and a-half, and then rose again on expiration. Several gentlemen, including Drs. Law, Hudson, Moore, A. Smith, and Walshe, saw this boy; but, after the closest examination, no diagnosis approaching certainty was arrived at. The spleen was known to be enlarged; and it is a curious fact, and worth noting, that when the boy came into hospital the veins of the abdominal wall were much enlarged, but subsequently lessened so much as to be barely visible. My own impression of the nature of the tumour was, that it was a portion of indurated omentum, very probably the result of strumous disease. I had seen a similar case, some years before, with Dr. Cuthbertson, excepting that the tumour in this last case occupied the right side of the abdomen. Here it was only a *post mortem* examination cleared up the obscurity which hung over the diagnosis during life.

In reference to the distance to which the act of inspiration may affect abdominal tumours, I should say I saw one instance

where a tumour which had reached the right iliac fossa was so moved. The case was one of malignant disease, which commenced above—I think in the liver—and grew with extraordinary rapidity till it reached low down on the right side. Here I could feel distinct movement when the patient made a deep inspiration. The explanation of this would, I think, be, that it was the movement of the liver above which was communicated downwards; and that, had the mass grown from below, the great probability is that no effort of the breathing would have affected it. At any rate, the fact that the respiration is capable of affecting movable tumours in the upper and middle thirds of the abdomen, and may even reach lower than this, is, I think, worthy of notice in reference to diseases of the ovaries, where it may be the means of arriving at a diagnosis as to the presence or not of adhesions, which, I should suppose, it would, at times, be of great consequence to know.

The affection to which I would now ask attention is dilatation of the colon—not the simple, and what may be called transient, state, and which it may be supposed exists, more or less, in all cases of constipation, but that state of the bowel in which the dilatation is permanent, and from which it is very doubtful whether recovery ever takes place. The affection is obviously one analogous to what occurs in the other hollow viscera, as the heart, stomach, gall, and urinary bladders; and, though the natural and healthy functions of the colon might seem, as it were, to lead to dilatation, still this state is, in my experience, rare. Neither is its diagnosis as simple as might at first be thought. Indeed, mistakes, I know, may occur; other diseases may be mistaken for this one, or this state of the colon for others. An example or two may not be out of place :—

Case 1.—A girl, of nine years of age, was admitted into hospital, labouring under considerable swelling of the abdomen. On examination a number of masses could be felt through the parietes. They were very movable, conveyed the idea of being so soft as to take the impression of the fingers, and were shaped just like coils of intestine. The general impression was, that the case was one of dilated bowel, filled with fæces. It should be stated that the child had considerable fever. She wasted rapidly; and, as she did so, the tumours became the more marked, and were even visible to the eye. On *post mortem* examination a very considerable portion of the intestine, chiefly the smaller one, was found infiltrated with a lardaceous material, evidently of a malignant nature. It was so placed as to thicken the walls of the intestine, in some parts to the extent of half an inch, and thus lessen its calibre. The material was softish, and retained the impression of the finger. The case is, as far as my experience goes, unique.

Case 2.—A maiden lady, middle aged, and of a spare habit of body, began to get large in the abdomen. It was so very gradual as to be almost imperceptible, and but little inconvenience was felt. There was a tendency to constipation, which, however, yielded to purgatives; but the size of the abdomen was not reduced after their action. The patient died, and the whole colon was found enormously dilated, and full of fæces, the sigmoid flexure alone being four feet long and two feet in circumference. There was no stricture of any kind. This case has been given because the preparation has been preserved, and may be seen in our College of Surgeons; and, in the printed account of it, it is significantly added :—"The nature of the affection was not guessed at during life."

Case 3.—It is now more than six years since I was asked to see a lady on account of swelling of the abdomen. She was unmarried, upwards of fifty years of age, and of a spare habit of body. The lower extremities pitted on pressure, and she could walk but feebly. Though occasionally in the habit of taking aperient pills, there was no marked constipation. The swelling came on so imperceptibly that she could not say when it first began. It was quite obvious it increased at the slowest possible rate. Her appetite was fair; but she was, and had been, subject at times to fits of low spirits. When seen in bed the abdomen was found to be much swollen, and the swelling gave the idea of great solidity; and percussion confirmed this, for there was very little tympany. The veins over the surface were visible, but there was no marked enlargement, neither was there any fluctuation.

My first impression of this case was that the tumour was ovarian. But closer examination led me to doubt this; for I found that the mass was made up of five or six smaller masses; and that some of these could be moved in a very slight degree, not, however, from the act of inspiration, for I believe the abdomen was too full to allow of this, but by pressure from the hand. The greater masses I should say, lay on either side of the umbilicus, the longer axis being from above downwards. It is sufficient to add of this case, that after I had seen it three or four times, and having also in mind the case already given, of which the specimen is in the College of Surgeons, I came to the conclusion that it was one of dilated colon, and subsequent events, have, I think, confirmed this opinion. For though the lady is, and, I suspect now, will be a confirmed invalid, she has yet been materially improved by treatment. The abdomen was considerably reduced; and as it became so, the tumours divided, if I may so speak, so that what was a single one this month, became two the next. She was able to take considerable walks, and otherwise could enjoy life. I only now see her at long

intervals, as she is able to manage herself. But at the present time I believe she is as well as her disease can allow of. The treatment adopted consisted mainly in courses of tonic purgative pills, given for twelve or fifteen days at a time, and then stopped. No medicine in the fluid form either agreed with her, or indeed was of any use. Circumstances prevented my carrying out all the measures which might have been of use in a case of this nature. Her greatest inconvenience, I should state, does not arise from her size, but from the weak state of her limbs, and the inability of walking. She is worse, too, at certain times than at others; and then there is usually considerable pitting of the lower extremities. From first to last there has been nothing of what might be called constipation, but more a sluggish action of the bowels.

Within the last eight months another instance of this affection came under my notice. It occurred in a man of sixty-eight, who came to me under the idea that he was getting dropsical. An examination, however, satisfied me that the swelling, which was dull on percussion, and had no fluctuation, was due to dilated colon; and in about three weeks treatment relieved him, at least for the time. There is every probability, however, that the state will return—the more so when we recollect his time of life. The case, however, calls for no further notice here.

But all cases of this affection do not present themselves to our notice under the same uncomplicated form. Other states and diseases may be superadded; of which the following is a good example:—

Case 5.—A married woman, about thirty years of age, was sent into Sir Patrick Dun's Hospital, by Dr. Leney, of Bray. She laboured under an affection of the heart, and had slight œdema of the lower extremities. She thought herself dropsical, even in the body; and when seen in bed the abdomen was found to be very full; but neither Dr. Aquila Smith, who saw this case, nor I, could detect fluctuation. The examination, however, did detect a number of tumours floating about, as it were, in the abdomen; for they were very movable. None were larger than an orange, and they ranged from that down to the size of a walnut. On inquiry, the patient stated that for upwards of a year the bowels had been getting irregular, but that otherwise she did not feel out of health. When, however, the pitting about the ankles came on, joined to the disease of the heart, as known to Dr. Leney, it was then thought advisable to send her in to Dublin. She was treated under the idea that the swelling of the abdomen was due to an enlarged and sacculated colon; the tumours being collections of fæces, and there being also air in much greater quantity than is usual in this class of cases. At the end of three weeks all the movable tumours had dis-

appeared, and the abdomen had lessened in proportion. Still there remained more of fulness in the hypogastric region than was natural; and though the patient denied all possibility of being pregnant—and this had been asked her on her first admission to hospital—it still turned out that she was so, as proved by the stethoscope. She ultimately left hospital as well as a woman in her state could, for the heart disease was unequivocal.

But cases may be very like the one just given, and yet not be identical. Shortly after this, my friend Dr. M'Clintock showed me a case where two or three tumours, the size of an apple, and very movable, could be felt in the abdomen. The patient was a woman of forty-two, and had been married but two years previously. The tumours lay on either side of the abdomen, and would be referred to the lower part of each kidney. Dr. M'Clintock's opinion was, that the tumours were malignant, whilst my own was that they were due to a sacculated colon; and under this idea she was sent to Sir P. Dun's Hospital, to see what a course of treatment might effect. She remained, however, but a fortnight, being anxious to return to her home. It is enough to say, that she did not get better whilst in hospital, and that, after many months, Dr. M'Clintock's opinion was proved to be correct, for she died of malignant disease, involving nearly the entire abdomen. Of this case I shall only add that, to the present time I am at a loss to say where the disease could have commenced. For I can scarcely imagine that the tumours first discovered were the ovaries. They seemed to me to be too movable, and at too great a distance from the usual sites of these bodies. This is, however, a matter for discussion.

There is one feature in the history of the affection of which I have been speaking which calls for notice here. As a general rule the bowels are sluggish, but not at all to the degree that we might expect. On the contrary, they may act regularly; and this is very likely, indeed, to lead us astray, and calls for the greater caution. So far, however, from there being constipation, or a tendency to it, there may be the very opposite, and diarrhœa may exist. One such instance I have known; it was exhibited by the late Dr. Mayne before our Pathological Society. In this instance the diarrhœa terminated life, and the entire length of colon was enormously distended. There was no ulceration, nor stricture of any kind.

The diagnosis of dilated colon is not by any means the simple matter it might seem; and I believe it to be but common prudence to withhold our opinion till we are able to make successive observations on the case. Some, no doubt, are so very plain that the diagnosis may be made at once; but it may, I think, be stated with certainty, that the great majority are not so. In the case of the lady already given, she was seen, but once only,

by the late Sir Henry Marsh, and he told me plainly that he could not make up his mind on the case; and in this I think he showed his great good sense.

On what, then, is the diagnosis to rest? I can only answer this in general terms. In the first place there are usually more tumours to be felt than is common where organic disease exists, whether malignant or otherwise. For though I have given a case where malignant disease, and in a comparatively early stage, existed in two distinct regions, it will still, I think, be allowed that this is exceptional, and therefore not generally to guide us. On the other hand, a single tumour may exist, and yet be due to nothing more than a portion of the colon dilated, and filled with fæces. I have met no unequivocal case of this kind myself, but there are two—if I recollect right—in Bright's able monograph. Still, these are all exceptional cases. As regards the site of the tumours, in cases of dilated colon, something to assist our diagnosis may be gained. Thus they are commonly situated so as to occupy the middle third of the abdomen; and when they occupy, as they often do, both sides of the cavity, there are good grounds for supposing it is a dilated colon with which we have to deal.

But, probably, one of the most characteristic signs of this state is the way in which the tumours are impressed, as it were, with a certain amount of movement—I mean in themselves. This can, of course, only be observed when we can make repeated observations at certain intervals. When this is done it will often be seen that the tumours have altered their position; slightly, it is true, but still so as to leave no doubt on the point. There is every reason to set this down to a very slow peristaltic action of the bowel. With it, too, will occasionally be observed a certain degree of lessening of some of the tumours; and, in the last place, it may occur that the character of the discharges from the bowels, as regards their size, may assist the diagnosis. It might be supposed that this would be of common occurrence. It is quite the reverse; for weeks and months may elapse and yet no characteristic discharges occur.

Such, then, are the signs which may lead us to a correct diagnosis:—The number of tumours—their site—their movements—their alteration in size—and, occasionally, the character of the evacuations.

Into the symptoms caused by this state of the colon it is not my intention to enter here, farther than to say they are, or may be, all those which arise from constipation in general, and, in addition, the increased size of the abdomen. The patients are very liable to attacks of pain like colic; and the two extremes of constipation and diarrhœa, of which examples have been already given, may likewise occur. It seems scarcely necessary

to add that our treatment must be pointless and ineffective if the state with which we have to contend be not thoroughly understood. Much caution, too, is required as regards our prognosis. With our present experience we have no grounds for supposing that the disease, if once fully formed, is curable. But that it can be alleviated is certain; and the extent to which this may succeed must depend on the circumstances of each case. The age of the patient, duration of the disease, length of intestine involved, temperament, &c., will all have an influence on the result. What, then, is the line of treatment to be adopted? Courses of purgative medicines, suited to the requirements of each case, given at stated intervals, and then omitted for the time, must be our sheet-anchors. It is most important, too, that these medicines should be used with the least injury to the system at large. Hence the value of combining tonics with aperients; and of the former I have found none more efficacious that the preparations of the nux vomica. The common extract of this drug, in union with the compound colocynth pill, or the former with the mass lately introduced in the *British Pharmacopœia*—the compound pill of colocynth with hyosciamus—make good combinations. Every one, however, will have his own favourites. The doses should not be large, but small, and frequently repeated—at least twice a day; and, except under some peculiar circumstances, pills are much superior to the fluid medicines. Injections, too, are at times useful; but it is very strange what little comparative effect they have.

The best directed medicines will, however, cause little good results unless they be combined with other means. The diet should be regulated so as to be the opposite of what is called a dry diet; and with this a system of frictions to the abdomen should be perseveringly carried out; and also bandaging, so as to give a steady support to the parts, should be enjoined. As a means of improving the tone of the muscular coat of the intestines electricity has been recommended, and in suitable cases would, no doubt, be of benefit; as would also all those measures which have a tendency to improve and invigorate the constitution. But these points are so obvious that they do not call for any further notice here.—*Dublin Quarterly Journal, August* 1864, *p.* 3.

28.—ON INFLATION AS A REMEDY IN INTUSSUSCEPTION.

By Dr. David Greig, Dundee.

[In all probability the most frequent cause of intussusception is spasmodic contraction of a portion of the bowel, and relaxation of an adjoining part. It is not by any means a rare occurrence

in early life, though probably some cases die without a correct diagnosis having ever been made. Cases are best divided into inflammatory and non-inflammatory. The latter no doubt frequently takes place during life as a temporary derangement, and is met with in cases where there were no symptoms or uneasiness during life. With regard to the true inflammatory intussusception, a very fatal disease, the writer then passes on to observe:]

Every intussusception consists of three parts, the external part or covering, which is formed by that portion of the bowel into which the other has slipped, and the middle and internal, which consist of the invaginated part doubled upon itself. It is these two latter which are acted upon by the first, compressed, constricted, strangulated; and, as a matter of course, inflammation and sloughing ensue. Cases are recorded where inflammatory intussusception has taken place in the small bowel; these are, however, not very frequent. By far the greatest number take place at the ilio-cœcal valve, and are caused by the slipping of the lower portion of the ilium through the valve and into the cœcum. By the peristaltic action of the cœcum and colon, more and more of the small bowel is dragged through the valve, whose spasmodic action will prevent any returning; and when, owing to the mesentery, &c., no more can be dragged through, the cœcum is taken into the colon also, and this is generally the state of matters when such a case is examined after death. The peculiar anatomical characters of this part of the bowel are what we should expect to favour the formation of an intussusception, and to retain one when formed. That the great majority of intussusceptions are into the larger bowel, is a practical fact wel worth bearing in mind, because an intussusception below the ileo-cœcal valve is much more amenable to treatment than one above it. This intussusception generally occurs in healthy children; its presence is shown by a regular series of well-marked and almost unmistakeable symptoms. The case, as might be expected, runs a rapid course, and death generally takes place on the third or fourth day.

Much has been written about this serious complaint, but by far the most complete and practical paper on this subject, is one by Mr. Gorham, in the third volume of Guy's Hospital Reports, which I would beg leave to recommend to the perusal of all my medical brethren who wish information on this subject. In that paper Mr. Gorham not only gives a very good description of the disease, but was, I believe, the first in this country who used insufflation as a remedy for it, having taken the hint from some successful cases of the kind recorded in the American Journal of Medical Science. That nature does succeed sometimes in re-

storing the bowel to its natural condition, there is every reason to believe; but it is not by any means a frequent occurrence. Dr. West well remarks of the cases recorded in medical journals, "I have observed only one instance in which the symptoms of intussusception having existed in a marked degree, at length spontaneously ceased, and were followed by the restoration of the infant to perfect health."

The diagnosis, symptoms, and treatment of such cases will be best illustrated by the narrative of five cases which came under my observation, singularly enough, all within a very short period; in consequence, my attention became specially directed to the nature of this disease.

Case 1.—M. S. G., a stout, healthy, female child, six months old, always enjoyed good health, never having had a day's sickness; never had any food except breast milk; never troubled with diarrhœa or bowel complaint. Was in her usual good health on Monday, 13th October, 1862, up to 6 o'clock in the evening, when, without any obvious cause, she suddenly became fretful, kicking with her feet, bending the body backwards, and screaming. In about ten minutes she became very sick and vomited severely. The skin became cold and clammy, the countenance pale, and the lips livid. In a little while she revived, but soon became restless and as sick as before. She seemed to have great pain in the abdomen, which came on in paroxysms, and to increase in intensity until she vomited, when she would seem relieved a little, or at least so faint and sick as not to scream. When given the breast, she would take it readily; but as the sickness and vomiting, with a paroxysm of pain, immediately came on, she latterly refused it. Immediately when she was seized a spoonful of castor oil was given, and hot fomentations were applied to the abdomen. The castor oil was soon ejected from the stomach, as was also a small purgative powder which was given. A warm-water enema was attempted to be administered, but the bowel seemed to be in such a state of spasm that none could be thrown up. About 8 p.m., tenesmus came on, and she passed a little fluid blood, which continued to come with every paroxysm of pain during the night. The abdomen was soft, slightly tympanitic, and not painful on pressure, except during a paroxysm of pain, when pressure seemed to increase it. On deep pressure being made over the abdomen, under the umbilicus, a very distinct hard tumour was felt a little to the right of the mesial line. Seeing that the case was a serious one, and as the little patient was a near relation of my own, I asked my friend Dr. Pirie to take charge of the case. He attempted to give another enema, but with no better success, owing to the very peculiar spasmodic state in which the bowel was. On the morning of the 14th, as the child was no

better, and as Dr. Pirie suspected an intussusception, he requested Dr. Nimmo to see the case along with him. In consultation it was decided that it was a case of intussusception of the bowel. The sickness still continued, but not so severe as on the previous day. The infant took the breast readily, and after taking it would lie still for a few minutes; pain would then seem to come on with sickness, and the milk would be ejected from the stomach with great violence, after which the child would seem exhausted and lie still for some time. It seemed to have great thirst, and took cold water greedily, which, however, was soon ejected. The pulse was about 130, small. Injections were again administered, but with the same result as formerly. As everything had been tried, and nothing had done any good, and as it was evident the child was fast sinking, it was proposed to use the air injection which is mentioned in Dr. West's work on Diseases of Children, as having been used with success by Mr. Gorham. Fortunately, Dr. Nimmo had in his library the volume of Guy's Hospital Reports, which contained Mr. Gorham's paper on the subject, and after each of us had perused that paper, it was resolved to gve the remedy a trial, as a last resource, and in truth with no very great hopes of benefit.

The nozzle of a small pair of bellows was introduced into the anus, and air injected to a considerable extent. Contrary to our expectation the air passed readily into the bowel, and seemed to give the child great relief. After the injection it lay very quiet, as if asleep, and evidently quite free from pain. In about twenty minutes from the time the air injection was administered, a slight rumbling noise was heard in the child's abdomen, followed by a crack so loud and distinct as to alarm the attendants in the room, who thought something had burst in the child's bowels. The child, however, continued as if asleep and free from pain, and in about half an hour a large feculent fluid stool, slightly mixed with blood and mucus, was passed without pain. During the night the child rested pretty well, had no return of vomiting, took the breast as usual, and in two days was quite well.

Case 2.—W. C., a fine, healthy, male child, 9 months old, never having had a day's sickness, was taken ill on Friday, the 7th August, 1863. He was quite well in the morning, and his bowels were freely moved about 5 a.m. At 12 noon, without any warning, he was suddenly seized with very severe sickness and vomiting; he became deadly pale, and his skin was covered with a cold clammy sweat. In a short time he recovered from this state; he became warm, and his countenance resumed its natural appearance. He was, however, restless, and seemed to have thirst, but immediately on getting a drink of milk he fell into the same faint state, and the milk was ejected from the

stomach with violence, the child, before the vomiting, evidently suffering great pain. Even a spoonful of cold water was not retained above a few minutes. The child continued in much the same state until I saw it at 11.30 p.m. At that time it seemed to be suffering from paroxysms of pain, which seemed to come on about every twenty minutes, and the sickness and vomiting continued almost as bad as at first. The skin was warm and moist, the countenance pale, pulse 120, thirst very great, and everything liquid was taken with great eagerness; it even took the breast with as great relish as it did when in health. Immediately after anything was taken into the stomach, it would lie quiet for a few minutes; it would then become restless, and this restlessness would increase until, during one of the paroxysms of pain, everything would be ejected from the stomach; and this was repeated again and again. The abdomen was flaccid and soft; but a distinct, hard swelling, or tumour, could be felt under, and to the right of the umbilicus, which seemed to be somewhat tender on pressure. A spoonful of castor oil had been given in the afternoon, but was immediately vomited. The bowels had not been moved, but there was some tenesmus, and before I had been long besides the patient, about a spoonful of slime and florid blood passed from the bowel. I had not the slightest doubt the case was one of intussusception, and proceeded to administer a warm-water enema; but the same peculiar spasmodic state of the bowel, which was mentioned as existing in the former case, was again found here. In order to overcome this, I tried to plug the injection pipe into the anus with lint; but it was of no use, the injection seemed to give the child great pain; very little of the water would go up the rectum, and the little that I did succeed in throwing up, remained a very short time, and only brought away more blood. Nothing came from the bowels but fluid blood and frothy mucus, in which were found shreds of mucous membrane. This state of matters continued until 2 o'clock on Saturday afternoon, when I resolved to try the insufflation of the bowel.

Having got the tube of an ordinary elastic enema fitted on to the pipe of a small pair of bellows, I threw a considerable quantity of air into the rectum. It passed very readily into the bowel, there was no straining or attempt to expel it, and it seemed to give the child great relief. It had taken some milk from the breast shortly before this, and although the sickness was coming on as usual with a paroxysm of pain, the insufflation seemed to relieve the pain, and the milk was not vomited. I waited for an hour, and as the sickness was again threatening to come on, and fearing I had not thrown in enough air, I administered another insufflation, and continued the process until the belly showed signs of considerable distension, and the

child seemed to be somewhat uneasy in consequence. At this time I also administered a teaspoonful of castor oil, and was pleased to see the stomach retain that also; and from this time there was no more vomiting. After this the child fell asleep, and slept for about half an hour, awoke, was inclined to be amused, but still seemed uneasy. Warm fomentations were applied to the belly, which seemed to give relief. From this time the child seemed free from pain, and for the most part slept until about five o'clock, when a copious stool was passed, fluid in consistence, and mixed with some blood. From this time the child was quite well, took the breast with eagerness, retained what it took, bowels became regular, and it soon made up in flesh what it had lost during its short but severe illness.

These I look upon as very good specimen cases of true inflammatory intussusception. Other obscure cases I have met with in my practice, presenting some of the symptoms of this derangement; but with these we have nothing to do at present. As an intussusception of the bowels cannot be seen or handled like a hernia or a fractured limb, many medical men are very sceptical when told that a certain remedy relieved such a case, and can only believe an intussusception to be present by seeing it at a post-mortem examination; this is certainly very conclusive proof, but a kind of proof we would wish to avoid, however conclusive. To my mind the symptoms of an intussusception are unmistakable, and may shortly be said to be, the sudden seizure, the obstinate vomiting, the obstinate constipation, the paroxysms of pain, the hard tumour in the abdomen, and *chiefly* the passage of blood per anum; all these various symptoms may show themselves in other diseases, but when combined together, and especially when the last mentioned symptom, the passing of blood per anum is present, I think no one can have any difficulty in forming a correct diagnosis, and must feel convinced that an intussusception is present, without the necessity of a post-mortem examination.

The prognosis of such cases is always unfavourable; and it is well that the medical man guard himself by stating so, whenever he has made his diagnosis. It is true, numerous cases are on record where nature has produced a cure by the sloughing of the strangulated portion of the intestine, and the junction of the healthy parts. About two years ago, Dr. Hare had an opportunity of showing to the Pathological Society of London how neatly nature completes a cure of this kind, a patient of his having died of tubercular disease only three months after suffering from intussusception, in which several inches of the small bowel came away on the fourteenth day of the attack. At the post-mortem examination it appeared that the portion of the small intestine came away fifteen inches above the caput coli,

and so perfect was the cicatrix, that it appeared as a mere line round the bowel, with puckering of the omentum, &c., around it. I would not, however, advise any one to forego treatment and trust to nature for a cure; as, from my experience, nature is not to be trusted even when the case appears to be one of no great urgency.

As to treatment, purgatives in the first place naturally suggest themselves; but these are worse than useless, rarely remaining on the stomach, and if they do remain only stimulating the bowel and aggravating the disease. Warm-water enemata are useful, but can seldom be administered owing to the very peculiar irritable spasmodic condition in which the rectum usually is. In any case where this spasmodic condition is not present, or only to a slight degree, I have no doubt warm-water enemata, or, as I used in one case, warm-water and air thrown in by a syringe would be useful. The ease, however, with which air is thrown into the spasmodically contracted rectum, when it is impossible even to introduce a tea-spoonful of warm-water, gives this agent a pre-eminence over all others, and astonishes all who have seen it used. The remedy is always at hand even in the poorest cottage, no matter how far away from town. Its application is so simple as to require no direction for its use. The only necessity being that enough air be thrown into the bowel to distend it as far up as the neck of the invaginated portion, or, in other words, that the operation be continued until the child begins to be uneasy, and the belly distinctly tympanitic. Amongst other means for relief, cases are on record where the abdomen has been opened for the relief of the bowel in intussusception. It is difficult to reduce one by manipulation after death, and I have no doubt it would be much more so to do it during life.—*Edinburgh Medical Journal, Oct.* 1864, *p.* 307.

29.—ON HEPATIC DISEASES IN THE EAST INDIES.

By Sir J. Ranald Martin, C.B., Physician to the Council of India.

[In this article Sir Ranald speaks entirely of Hepatitis, which is indeed the disease of the liver of most frequency and importance. In a case of this nature it is well for practical purposes to determine whether the inflammation be confined to the peritoneal covering of the organ, or to the parenchyma, and then to examine the probable extent of the morbid change in progress. It is seldom that hepatitis includes at once either the entire of the capsule or the entire of the parenchyma of the liver, various circumscribed portions of either, or of both together, being more usually affected by the disease.]

The form and character of acute inflammation of the liver as it prevails throughout India differ materially according to the region, the immediate locality, and the climate; the suppurative hepatitis prevalent in Bengal being, in common with the fevers and dysenteries of that great province, by much the most dangerous. In Madras hepatitis is said to be more frequent, while in Bengal it is more fatal. The surgeon will therefore have to consider with care the general climate, that of the particular locality, the age and constitution, the previous habits and course of service, indeed all the hygienic conditions of the soldier, before proceeding to treat him; and in each individual case he must be guided more by a well-weighed consideration and comparison of its assembled essential symptoms, than by the presence or absence of any one or two of them. In this disease, as in all others, there is no precise uniformity of symptoms. Where the covering membrane of the liver is the part chiefly inflamed (sero-hepatitis), the sufferings of the patient are sufficiently declared to claim the instant attention of the most cursory or youthful surgeon, the degree of the pain and other symptoms depending on the extent, duration, and violence of the disease. There is always more or less fever, increasing towards evening to severity, preceded by rigor or sense of cold, and followed by a hot skin, and a sharp pain, especially in the hepatic region, on attempting to make a full inspiration, or on lying on the left side. There is often a catching hacking cough, with a tensive apprehensive uneasiness of the right hypochondrium. Sometimes there is pain about the right clavicle and shoulder, and generally an increase of pain on pressing the hepatic region with the expanded hand: these feelings are multiplied when the inflammation is centered in the covering of the upper convex surface of the right lobe of the liver. The symptoms may then extend into the chest; respiration is shallow, short, and is carried on chiefly by the intercostal muscles; while pain and suppressed cough increase along with the fever. It is important here to remark that while even a moderate degree of inflammation of the peritoneum will cause the distresses here described, the most intense and destructive inflammation within may proceed quickly to abscess without any great comparative suffering.

When inflammation is chiefly seated in the covering of the right lobe, or posterior-inferior region, the local symptoms take corresponding directions, the general disturbance remaining much as above described, with the additional distress in the latter instance of disorder of the renal function, as well as of that of the bladder. Naturally, the train of symptoms will vary as the concave surface of the liver is involved: here the pain will be less acute, and is referred to the epigastric region

through to the back; and there will be hiccup, nausea, and vomiting of vitiated bile, with anxiety and urgent distress; the functions of the ducts, duodenum, pylorus, and stomach being much disturbed, with tumidness of these regions; all the secretions are vitiated, and the tongue is very foul.

We come now to the consideration of a more obscure morbid process, but one of vastly greater urgency and danger—namely, the inflammation of the parenchyma of the liver. The deep-seated congestive and suppurative inflammation of the liver, as I have termed that of Bengal, would seem occasionally to be a disease of acute congestion, venous and biliary, more than of pure inflammation; and this morbid association, together with its seat in the parenchyma, will account for its latency and insidiousness in so many instances, and for its enormous dangers. Dr. Copland says truly that inflammation does not here arise or reach its acme in a few hours, but congestion may; and Dr. Morehead suggests that actual inflammation of the liver is confined to the capillaries of the hepatic artery, and generally to a small portion of them; while congestion, he conceives, is a turgescence of the portal capillaries, and the cause of the augmented size of the liver.

In my work on the Influence of Tropical Climates on European Constitutions this form of disease is stated to be, in Bengal, by much the most frequent, while its dangers are greater than those of all other forms of hepatic inflammation put together. It is, indeed one of the most dangerous of diseases, because of its insidiousness, and of the absence of urgent symptoms; the progress which leads to destruction is here silent and rapid.

Whether occurring in the older resident or in the new comer, it arises more generally in the cold season, and is caused immediately by exposure to alternations of heat and cold; such as the chilling thorough-draughts on issuing from a heated ball-room, for instance, or in going into the damp cold of the early morning for purposes of sport. The disease is sometimes preceded by a perceptible falling-off in the general health, with a peculiar impairment in the action of the liver and kidneys, and with functional disorder of all the other abdominal viscera, as indicated by loss of bulk, dry cough, irregular and embarrassed breathing, loss of appetite, and the complexion assuming gradually a muddy sallow hue. But it more generally comes on in the midst of apparent health, the patient being seldom seen until inflammation has commenced, or proceeded for hours or even days. He will then generally complain of abdominal uneasiness, but more particularly of the epigastric region and that of the liver with some degree of fever, preceded by slight rigor or aguishness; but all these may be so slight as too often to attract but little of the patient's attention. Perhaps, after more

or less loss of time, he consults his physician on account of slight diarrhœa, supposed to result from errors in diet. Medicine affords relief, and the patient may proceed in his ordinary occupations for days, or, where the action is less acute, for weeks together, though under great depression of the mental and corporeal energies; till at length his altered appearance, night fever and restlessness, hacking cough, permanently dry skin, invincible rough furred tongue, and morbid taste—all expressive of suppressed and depraved secretions,—attract some more serious notice on his own part or that of his family. The real nature of the case, with its accumulated dangers, may still remain a secret to both patient and physician; and it may not be till actual tumour of the liver of unknown duration, and a marked succession of rigors or profuse clammy sweats, announce in unmistakable terms the formation of abscess, that either party becomes awake to the imminence of the danger; and then it is too late.

I should say, then, that a rigor or diarrhœa, followed by feverishness, the peculiar harsh state of the skin, with a muddy or (more rarely) a jaundiced complexion, the tongue having the roughness of a coarse file and an adherent coat, together with the local uneasiness already described, cough, scanty surcharged urine, often a deep saffron colour, ought immediately to warn the physician of the suppurative inflammation which leads rapidly to abscess. Nor should exploration of the abdomen be less carefully made, even where the case is of far less urgency than that here detailed. Nothing, indeed, should satisfy the medical attendant as to the condition of the patient short of the most painfully assiduous examinations, often repeated; for he has here to deal with a disease deadly in its nature and rapid in its progress, when insufficiently treated, beyond most others —a disease, when once allowed to run to its suppurative stage, more surely fatal than any known in the East.

[Sir Ranald then proceeds to consider the treatment of the disease. As it commonly occurs in Bengal, it proceeds to suppuration in a very short time, hence any treatment to be of use must be prompt and effective. General blood-letting must be carried to the extent of relieving pain, when such is present, or the dull tensive weight and uneasiness complained of in other cases. If this is not rapidly effectual it must be followed by the application of leeches to the side. But blood-letting by leeches alone is not successful in treating the disease. With regard to mercury the writer then continues:]

On my own observation and experience, I would administer calomel, purgatives, sudorifics, and diuretics, after the system has been prepared by blood-letting for their proper actions; all

with the view to their general influences, as well as with the view to their power to derive from the organ endangered, and from not feeling justified in withholding any known means to that essential end. Until experiments shall have yielded more definite and determinate results, such is the advice which I would take leave to submit to the consideration of the young medical officer. The actual fate of certain exclusive doctrines and practices within the memory of most of us, and the impending fate of some others, ought to warn us against accepting any proposition, in a case such as the one before us, unless it be of proved advantage, on evidence beyond question. Those who can look behind them, and a little way before them, will be at no loss to balance the comparative values of the past theory and the passing theory. In our profession, as in others, there are subjects which rise and fall—that occasionally come to the front, and then fall away to the rear; and it will continue thus with us until our modes of investigation become more precise.

I believe calomel to be a cholagogue, experiments on the lower animals notwithstanding; and I concur with Dr. Watson in regarding its exclusion from the treatment of acute hepatitis, in Bengal for instance, as unsafe and unwarranted. This great physician, speaking of those who object to the use of mercury in the early stage of hepatitis, "as being stimulating to the liver," says: "I suspect that this is a piece of theory; but at all events, after the first violence of the inflammation that remedy is not to be omitted." On this principle, which I believe to be strictly true, the most eminent men of my time in Bengal acted, and by none of them was mercury, in this or in any other disease, carried beyond its very mildest influences; and when the general habit was reduced to anæmic, mercury was used but once or twice in aid of a purgative. Robert Jackson, who seldom used calomel in treating the diseases of the West Indies, declares, nevertheless, that where the biliary function is morbidly affected there is no other remedy to be compared to it. The relief obtained in certain forms of jaundice from one dose of calomel, after all other remedies had failed, is familiar to everyone; and who has not witnessed the astonishing results, in torpor and passive congestions of the liver, from a spontaneous biliary diarrhœa?

[The violence of the acute disease having been subdued the treatment must be cooling and depurant, the diet being of a sparing character, and the patient shielded from cold and currents of wind and confined to bed.]

When vascular turgescence or a state of passive congestion remains, after the subsidence of all the more acute sequelæ to inflammation, the persevering use of the nitro-muriatic acid,

externally and internally exhibited, will, according to my observation, go farther and better towards restoring the healthy condition of the liver than any other means; and the effect may be aided, when necessary, by blisters, or by the ointment of tartarized antimony. For restoring the functions of the liver, and for promoting healthy secretion generally, after the turmoil of such an invasion as acute hepatitis, I repeat that I know nothing, whether used in India or at home, so conducive to natural convalescence and cure as the combined acids, employed in the joint manner stated. Mercury is then but seldom required, and its use during the few days of acute morbid action usually brings us to the end of its proper term of employment. Externally I have used acids for many years, both in Bengal and at home, in the form of bath, general and local, and as a swathe placed round the abdomen worn day and night; while, internally, they have been given with fluid taraxacum, chiretta, or simaruba infusion. When eliminants and emulgents are needed in the stage of recovery, the podophyllum combined with henbane, extract of Indian hemp, and ipecacuanha, will prove very effective, used as an occasional means; while the diet must still be carefully regulated, making free only with green vegetables and fruits—otherwise absorption of interstitial deposits will not take place. In this cautious manner only can we secure the patient, whether in hospital or in private practice, against chronic sufferings, functional or organic.—*Lancet, July* 16, 1864, *p.* 64.

30.—CARCINOMA ABOUT THE GALL-DUCTS, CAUSING JAUNDICE.

(Case under the care of Dr. GULL, in Guy's Hospital.)

John G., bricklayer, aged 58, was admitted on the 19th February last, with extreme jaundice, the skin being of a greenish-yellow colour, and he was much wasted. He was of healthy parentage. Twenty-four years ago he had laryngitis, but in other respects had always been healthy. About ten weeks before admission he had to repair a slate roof, and it was raining hard the whole time; he got very wet, and went home feeling great pain and a sense of weight at his right side. In the night he was in such agony that he rolled on the floor, and thought he should die. A week after this his wife noticed that his skin was of a yellow colour all over, and that the "whites of his eyes" were also yellow. From this time he became worse, and sought admission into the hospital. He said that for about four months before his illness he could never drink a glass of ale without nausea or vomiting, and he frequently had diarrhœa. He died on the 25th, six days after admission.

Autopsy, ten hours after death.—The under part of the liver was adherent to the stomach and duodenum, and this again to the colon. These adhesions, together with the thickened tissue around and induration of the pancreas, caused a hard mass to be felt in this region. The infiltration was caused by a tough fibrous tissue, which did not present any other appearance than those of inflammation, and might have been so considered had it not been for the cancer of the liver. When the colon was dissected off there was found a hardened mass of material surrounding the portal vessels, &c., and thus the duct was perfectly closed at its termination in the duodenum. This also somewhat constricted the duodenum itself. The pancreas was excessively hard, suggesting at first a scirrhous cancer of the organ; a section, however, showed it to be hardened by inflammatory fibrous tissue around and amongst it. The new material in this neighbourhood was hard and fibrous, and gave out no juice on pressure. The gall-ducts throughout the liver were much dilated, and filled with watery mucus; the gall-bladder was contracted, and occupied by white inspissated mucus; the liver was of a deep-green colour; the pancreatic duct somewhat distended. At the back part of the liver were several deposits, two of them being the size of beans, and hollowed on the surface as in cancer; they were firm and dry. Near these were several smaller ones, but the region where they existed was circumscribed. There were also several very hard deposits of the same kind on the under surface of the diaphragm. No disease was observed in any other part. The microscope showed the composition of the deposits to be nucleated cells with abundance of oval nuclei.—*Dublin Medical Press, June* 29, 1864, *p.* 686.

DISEASES OF THE URINARY ORGANS.

31.—ON THE PATHOLOGY OF DEPOSITS OF URATES.

By Dr. GEORGE HARLEY, Professor in University College, and Assistant-Physician to University College Hospital.

Deposits of Urates are of a yellow or pink colour, according to the amount and kind of urohæmatin present in the liquid. The higher the colour the more febrile the state of the body. At one time their presence in the urine was regarded as a sign of the crisis of disease, and hence they received the name of critical discharges. Modern investigation has, however, proved that they cannot always be looked upon in this light, as they may also appear under a variety of conditions, which, although abnormal in themselves, are not truly diseased states, according to the usual meaning of the word. Thus, for example, urates

may be deposited in the urine after a slight attack of indigestion, the result of over eating or drinking. Great exertion, especially if accompanied by profuse sweating, will also cause them to appear. Hence we find them present in the urine after a fatiguing walk, a long day's hunting, or even after a ball, or other such occasional amusement, especially if it has been associated with much mental excitement. Hard study, and even a fright will in some persons be followed by a deposit of urate of soda. A sudden change in the mode of life is a very common cause of their appearance, as, for example, confinement in town to country people, or a few day's residence in France to an Englishman unaccustomed to French dishes. Under none of these circumstances can the deposit be said to indicate a state of disease. It does nothing more than denote a temporary abnormal condition of system which may soon disappear without treatment. If, however, the deposit, instead of being merely temporary, lasts for some days, that of itself would denote that something more than a mere ephemeral derangement of the system is present, and may deserve immediate attention. A deposit in the urine is always a sign of something being wrong, and although, as we have seen, it may occur from very trivial causes, whenever it takes place without appreciable cause, in the otherwise apparently healthy, it is a sign not to be disregarded, as, under such circumstances, it is not unfrequently either the forerunner or associate of gravel or stone. Uric acid in some form or other is the commonest ingredient of all calculi, and there is no period of life exempt from them.

Urates are a very common deposit in the course of acute disease, and they even seldom fail to recur at some period or other in the course of chronic affections. It is, however, only in diseases of an acute febrile or inflammatory type that their sudden appearance can be regarded as indicative of a crisis. Their sudden appearance is due to an important change having occurred in the condition of the patient, and in general, though not always, it is a change for the better. Such, for example, is observed to occur in cases of gout and rheumatism where the climax has been reached. So also in pneumonia and pleurisy when re-solution and absorption commence.

Should a patient, not labouring under any febrile or inflammatory affection, be every now and then troubled with a pink deposit in the urine without any assignable cause, it will be found, in almost nine cases out of ten, that he is suffering from some chronic affection of the heart, liver, or spleen, with which is associated a tendency to gravel. In all such cases, therefore, steps should immediately be taken to counteract this disposition by the administration of alkaline tonics. Should there, however, be any counter-indication to the correct alkaline treatment,

those acid salts are to be employed which, during their passage through the body, are converted into alkaline carbonates—such, for example, as citrates, tartrates, lactates, and acetates. Every now and then an exceptional case may arise, where a mineral acid tonic is demanded, under such circumstances the above rule may be departed from, and the case treated according to its special requirements.

It not unfrequently happens that there are crystals of free uric acid scattered among an amorphous deposit of urates. This is more frequently the case in the course of chronic than of acute affections, and generally arises from there being an excess of acid in the urine which has combined with some of the alkaline base and set a portion of the uric acid free.

The crystals of uric acid form on the bottom and sides of the vessel as the urine cools, and, if large they may be readily detected by the naked eye, in consequence of their yellow, red, or brown colour. Uric acid, like urea, when crystallised in urine always takes up a part of the urohæmatine or any other colouring matter that may chance to be present. So that, the paler the urine, the less coloured are the crystals; the darker the urine the more coloured the crystals. In abnormal urines containing blue, black, or saffron-coloured pigment, the uric acid crystals are blue, black, or yellow; as in these variously-coloured specimens now before you. The crystals are easily recognised by the naked eye if the urine be put into a wine-glass and the deposit allowed to fall to the bottom.

Uric acid is not necessarily in excess when it crystallises spontaneously—though that is the general rule. It has just been said that an excess of free acid induces its crystallisation. I may now add that it is also deposited when from any cause the proportion of alkaline base is abnormally diminished. This arises from the circumstance that uric acid is much less soluble than any of its salts, even the urate of ammonia included.

The daily amount of uric acid excreted varies very considerably in disease. It is generally in excess during the course of all fevers (yellow fever excepted), exanthematous affections, and inflammatory diseases. It has been found doubled in typhus (Parkes), greatly increased in small-pox, as well as considerably augmented in pneumonia. In certain diseases crystals of free uric acid are spontaneously deposited in the urine. This is more particularly the case in hepatic, cardiac, and splenic diseases.

In liver affections there is frequently a spontaneous deposit of free uric acid among the amorphous urates, which, as already said, are so common in those affections. This is more particularly observable in cancer of that organ, in which case, too, the uric acid is generally in excess;—a fact frequently made use of

in diagnosis, for in non-malignant hepatic disease, especially towards its latter stages, the uric acid is found to be remarkably diminished.—*Medical Times and Gazette, May* 28, 1864, *p.* 584.

82.—ON URIC ACID.

By Dr. GEORGE HARLEY, Assistant-Physician to University College Hospital.

[Although uric acid calculi are most common in early life they may occur at all ages. After speaking of the relative frequency of uric acid calculus compared to other forms, Dr. Harley passes on to the treatment of uric acid calculus.]

When the calculus is in the urethra or bladder, cutting or crushing, if the condition of the patient admits of it, ought immediately to be had recourse to. But when the calculus is in the ureter or kidney, it is unfortunately beyond the reach of any instrumental interference; and in the majority of such cases, if the stone be large, incurable. Should, however, the case be seen in the early stage, it is in our power, not only to arrest any further deposit, but even, by suitable remedies, to some extent, redissolve what has already formed, more particularly if it be in the shape of sand. When, however, a large solid stone has formed, palliation, not cure, is all that can be hoped for.

The remarks now made are limited entirely to uric acid calculi; for as you will afterwards see, there are some calculi of so soluble a nature as to admit of removal by dissolution even when in an advanced stage of formation.

Various remedies have been resorted to with the view of retaining any excess of uric acid in a soluble state until after its expulsion from the body. Carbonate of soda has been much used for this purpose, also the bicarbonate of potash, and more recently the carbonate of lithia. Each of these remedies is useful, as, indeed, all alkaline carbonates are, with the exception of that of ammonia. The carbonate of ammonia should be avoided in the uric acid diathesis on account of the salt which it forms being much less soluble than any of the others.

In treating cases of uric acid deposit, it is unnecessary to render the urine more than neutral. Indeed, there is a danger in making it alkaline from the circumstance that phosphates have a great tendency to form round uric acid calculi (as is seen in these twelve specimens of various shapes and sizes now on the table), and whenever the urine becomes artificially alkaline, although the deposition of uric acid is interrupted, a deposit of triple phosphates takes its place. The stone, therefore goes on

forming as rapidly as before, the only difference being that its its nature is changed.

In cases where the alkaline carbonates are counter-indicated, citrates, tartrates, or acetates may be used in their stead, for the reasons before given. Some have imagined that uric acid gravel only appears in urine of the well-fed and corpulent. This is a great error. It equally occurs in that of the poorly nourished and emaciated, the only difference being that it is more common among the former than among the latter. In this urine, you perceive, there is a copious deposit of uric acid. The bottom of the glass looks as if it had been sprinkled over with a layer of yellow sand; yet this is the urine of a delicate, anæmic lady, with a miserable appetite. In her case the deposit appears to be hereditary—at least, her father is said to have suffered from gravel.

The most remarkable illustration, however, that I can give of the truth of the above statement is furnished by the sand and gravel in this paper, which was passed by a patient of Mr. Ramsbotham, of Amwell-street. The gentleman who passed it was not only out of condition, but was actually on what might be called starving diet. The following is the brief history of the case, kindly furnished to me by Mr. Ramsbotham:—

"An officer in the army, upwards of sixty years of age, who had seen active service in every quarter of the globe, on his return from India by the overland route, deviated from the usual track for the express purpose of restoring his shattered health in the hydropathic establishment of Prisnitz, in Silesia. He remained there some weeks; but failing to have his juvenility restored, he repaired to a rival establishment a few miles distant, in which a directly opposite mode of treatment was adopted. Instead of using water freely, both internally and externally, as in the other establishment, in the latter very little food and no water was allowed, so long as the patient's strength would permit the deprivation, and then, perhaps only at distant periods would a wine-glassful of water be given. The urine passed was scanty in quantity, and, when simply filtered, left on the paper the powder, of which this is a portion."

On analysis, I found that the powder and small concretions consisted of uric acid, and urate of soda, with a very small quantity of urate of ammonia.

Enough has now been said regarding uric acid in excess; we shall therefore turn our attention to the equally important fact, that under certain pathological conditions its formation is diminished. We are not yet in a position to speak confidently regarding the nature of all the conditions, but we are sufficiently familiar with the fact that the elimination of uric acid by the

urine is diminished in the following diseases, and that it is to some extent under the control of remedies. In yellow (Porcher) and remittent (Parkes) fevers the excretion of uric acid is much decreased. In diabetes it is likewise found to be reduced to a minimum. Lehmann, indeed, thinks that in diabetes it is replaced by hippuric acid; but although I have frequently verified the former, I have as constantly failed to confirm the latter statement of Lehmann's. In the case of saccharine urine from injury to the head, during the first few days there was a total absence of uric acid in the man's urine. In albuminuria I have frequently found the uric acid greatly diminished, and absolutely wanting in two cases. It is said also to be deficient in the urine of cholera. In chlorosis, anæmia, and hysteria it is likewise decreased. The excretion of uric acid is diminished before the outbreak of the paroxysm of gout, but in this case it is known to accumulate in the blood. Dr. Garrod has frequently obtained crystals of uric acid from the serum of the blood of gouty patients. His method is to take from one to two fluid-drachms of the serum of blood, and put it into a flattened glass dish or capsule, about three inches in diameter, and one-third of an inch in depth; to this is added ordinary strong acetic acid, in the proportion of six minims to each fluid-drachm of serum, which usually causes the evolution of a few bubbles of gas. When the fluids are well mixed, is introduced a very fine thread, consisting of from one to three ultimate fibres, about an inch in length, from a piece of unwashed huckaback or other linen fabric, which should be depressed by means of a small rod. The glass is then put aside in a moderately warm place, until the serum is quite set and almost dry; the mantel-piece in a room of the ordinary temperature answers very well, the time varying from twenty-four to forty-eight hours, depending on the warmth and dryness of the atmosphere.

In normal blood the acid occurs in such small quantity that it is scarcely possible to detect it.

Uric acid has also been obtained from the serum of a blister placed on a gouty patient, but not when it has been placed over the goutily inflamed part—(Garrod). Both before and during the attack of gout the uric acid is diminished in the urine, but no sooner does convalescence begin than it rises even beyond the normal standard. From the twenty-four hours' urine of a convalescent patient, who was under Dr. Parkes in the University College Hospital, I obtained no less than 1·15 grammes (17·825 grains) of uric acid—double the amount the man would probably have passed under similar circumstances had the uric acid not been retained in his system before and during the paroxysm.

During the last two years I have had, at intervals of about three or four months, a patient aged sixty-five, under treatment who has been a martyr to very severe paroxysms of gout for at least twenty years. All the joints of his hands and feet are distorted from deposits, and he has no less than four well-marked concretions of the urate of soda in his right ear. This man's urine has been carefully analysed on several occasions, and the following is a sample of the results. The attack I now allude to began on November 15, 1863, was at its height on the 21st, and had disappeared on December 10.

Twenty-four Hours' Urine.

	November 18, Third Day.	November 21, Climax.	December 7, nearly Convalescent.
Quantity . .	2000 c.c.	1062 c.c.	1620 c.c.
Specific gravity	1011	1010	1008
Uric acid . .	0·095	0·023	0·178

On the third day of the attack he came to the Hospital, which was November 18, and was put upon the following mixture:—R. Vini colchici, ℥ss.; liq. potassæ, ℥vi.; aquæ, ℥ss., M., ter in die.

It would appear, then, as immediately after the gouty paroxysm has passed the uric acid increases in the urine, the increase of that ingredient in the course of the paroxysm ought to be considered as a favourable symptom.

The gouty deposits commonly called chalk stones, and which are so frequently met with in all cases of long standing, are not chalk at all, but consist of crystals of urate of soda. (Garrod).

A deposit of urate of soda in the cartilage of the joints precedes or accompanies every attack of gout. Hence arises the necessity of freeing the system of this product. Some persons have thought, that as colchicum—the favourite remedy for gout—instead of increasing the excretion of uric acid, diminishes it, and not it alone, but even the urea, the benefits derived from this agent must, if they are not entirely imaginary, be due to some different cause than its action upon uric acid. I, however, believe that colchicum does act upon the uric acid, but not, as is usually imagined, by merely affecting its excretion. On the contrary, I believe that by some means or other it arrests its formation, and that it is on this account that an occasional dose of colchicum during the intervals is found to ward of the attack of gout.

Dr. Ranke has shown that the formation of uric acid is diminished by quinine, and Dr. G. Pringle, while working in my

laboratory, made some experiments upon himself, the results of which are quite confirmatory of Dr. Ranke's views.

January, 1858. ——. Age 24, healthy and well developed.

Twenty-four Hours' Urine

Diet.	Quantity of urine.	Sp. gr.	Reaction.	Quantity of uric acid.	
	c.c.			grammes.	grains.
Mixed; drink only water, neither tea nor coffee	656	1031	acid	1·39	= 21·545
After taking during five days 10 grains of quinine daily; food and drink as before	665		,,	0·724	= 11·222
The same after seven days of quinine treatment	602		,,	0·577	= 8·945
The effect of the quinine did not pass off immediately.					
Diet as before; quinine discontinued for two days	600	1036	,,	0·66	= 10·230
Do., do., do., three days ..	525	1033	,,	0·792	= 11·276

Quinine combined with colchicum was Bequerel's favourite prescription for gout. Curiously enough, too, he used to combine it with digitalis, another substance which has the effect of diminishing the uric acid. A good formula is—

℞. Ext. colchici, gr. x.; digitalini, gr. ½; quinæ sulphatis, ℈j.; conf. rosæ, q. s. Fiat massa et divide in pilulas, xij.; sumat unam ter in die.

While in Munich, a few years ago, when talking to Professor Pfeuffer regarding his treatment of gout, he told me that he found the acetate of potash a good remedy, and it so happens that this also has the effect of diminishing the amount of urea and uric acid in the urine; and, as I said with reference to colchicum, I believe it is not simply the elimination of these substances which is arrested, but their actual formation that is checked.

I have already pointed out how animal diet increases uric acid. I may mention that there are certain other remedies besides those already spoken of, which diminish the formation of uric acid; these are atropine and cod-liver oil. Tea and coffee produce the same effect. On the other hand, there are some which, although they do not diminish its formation, yet lessen the quantity in the system by increasing its elimination from the body. Among these may be mentioned the phosphate of soda, and the liquor and bicarbonate of potash. Both in the urine of gout and of rheumatism the uric acid has been found increased after the administration of liquor potassæ, as well as after a few doses of the simple carbonate of potash, and it is not at all improbable that the beneficial action of these remedies in the above-named diseases may in a measure be due to their

hastening the neutralisation and elimination of the acid. Indeed, were I asked to give an idea of the pathology of gout and rheumatism, I would say that all our knowledge as yet tends in one direction—namely, to show that both gout and rheumatism are due to the presence of an abnormal amount of acid in the system; most probably uric acid in the one case, lactic acid in the other. I have repeated Richardson's experiments of injecting lactic acid under the skin of dogs, and although not always successful, have on three or four occasions produced artificial articular rheumatism. On one occasion I even got the endocarditis he has so ably described.

Uric acid is not only eliminated by the kidneys, but by the skin, and even by the lungs; so that, by increasing the action of the skin and pulmonary exhalation, we may aid its elimination from the blood. Experience has shown that whatever interferes with cutaneous transpiration augments the quantity of uric acid in the urine. The effect of cold has been already alluded to. Skin diseases have a similar effect. In eczema and psoriasis, uric acid increases in the urine, and in the pustules of pemphigus crystals of it have been detected (Malmeston). In the urine of a severe case of pemphigus, under the care of Dr. Hughlings Jackson, which he sent to me to examine, I found 17 grains of uric acid to the 32 oz. The urine was of a dirty brown colour, with a very acid reaction, and had a specific gravity of 1023.

With regard to the influence of alcoholic drinks, beer included, it is interesting to observe how they lessen the urea and increase the uric acid in the urine; whereas, with tea and coffee, the reverse occurs; they lessen the uric acid and increase the urea. Then, again, there are substances which act similarly on both uric acid and urea. The acetate of potash, colchicum, quinine, and cod-liver oil, for example, diminish, while bicarbonate of potash and liquor potassæ increase both.

These facts furnish us with several hints which may be turned to good account in practice. Remedies we possess in abundance, if we only knew how to apply them.

When I hear men saying that the medicines they are employing are little better than useless, it often occurs to me that they are, perhaps, not far wrong, although the want or success may not be, as they "vainly" imagine, due to the impotence of remedies, but to the want of knowledge and judgment brought to bear on the employment of them. A man needs only to pay a little attention to the teachings of physiology to learn what powerful weapons nature has put into his hands. Like all weapons, however, they may be turned to good or evil account, according to the knowledge or the inclination of their employer. I would even venture to suggest to our sceptical brethren that

it would, perhaps, be wiser if, before passing judgment on any particular remedy, they first made themselves familiar with the how, when, and why to employ it.—*Medical Times and Gazette, June* 4, 1864, *p.* 609.

33.—ON THE COLOURING MATTERS OF THE URINE.

By Dr. GEORGE HARLEY, Assistant Physician to University College Hospital.

The colour of the urine varies greatly in disease. It may be perfectly white, yellow, brown, red, black, green, or blue, and each of these tints, in the absence of ingesta capable of accidentally producing them, invariably indicates the existence of grave disease.

Normally coloured urine does not, however, exclude the possibility of disease, for the colour of the freshly passed urine is no absolute criterion either of the quantity or the kind of colouring matter it contains. The abnormal like the normal pigments are often combined with some of the other urinary ingredients in the form of colourless compounds, and it is not until the compound is decomposed, and the pigment set free, that we can take cognisance either of its quantity or quality. For example, here are three urines:—1st. A pale, almost colourless urine from a healthy infant, aged eighteen months. It has a specific gravity of 1018. 2nd. An equally pale, almost colourless urine, from a girl, aged nineteen, suffering from chlorosis. It has also a specific gravity of 1018. 3rd. A dark straw-coloured, but perfectly transparent urine from a healthy man, aged thirty-three. It has likewise a specific gravity of 1018. In fact, these three urines have been purposely selected on account of their having the same specific gravity. To each of these add a quarter of their bulk of strong nitric acid, and bring them to the boiling point. Watch the change. The infant's pale urine is scarcely altered; the man's dark urine is only slightly deepened in tint; whereas the almost colourless urine of the chlorotic girl has assumed an intensely red hue. What is the cause of this difference? The infant is in the bloom of health—there is no waste of blood corpuscles in it—all the blood discs it possesses are employed in the development of its frame. The man has arrived at maturity; he is still in the prime of life, and in the enjoyment of perfect health; his blood corpuscles are not wasted, but merely consumed in the tear and wear of every-day life. The young woman, on the other hand, is suffering from chlorosis; she has a pale lip, and a blanched cheek; her corpuscles are being too rapidly consumed; her life's blood is oozing away by the kidneys, and there it appears as an excess of urohæmatin in her urine.

Take again these two urines so different in appearance. They are from young men about the same age (twenty-four years.) The one urine is perfectly colourless, like water*; the other is of a deep red colour,—case of hæmaturia from disease of the kidney. On adding strong hydrochloric acid to the colourless urine it rapidly assumes a port-wine tint, whereas the same amount of acid added to the red urine, instead of heightening, actually destroys the colour it already possesses. And why? simply because the pale urine contains an excess of combined urohæmatin, which is liberated by the acid; whereas, the red urine contains merely a number of free blood corpuscles, which become coagulated, and, as the colouring matter in them is insignificant in quantity when compared with the amount of urohæmatin in the other, no sooner are their cell-walls destroyed and the contained hæmato-globulin set free and coagulated, than the red colour disappears. Now, which of these two classes of urine denotes the most danger? Most assuredly, not that containing the free blood-cells. A very small quantity of blood will sometimes colour a great deal of urine; whereas an immense destruction of blood corpuscles may take place in the body, and their *débris* be so eliminated as to be invisible to the eye until the application of an acid sets it free. In fact, experience has shown me that the normally coloured urine of disease is a most treacherous guide to go by. It often lulls the inexperienced into the belief that there is nothing materially wrong, when a grave lesion is making rapid strides towards a fatal termination. Not very long ago I was told by an intelligent Practitioner, that a young lady, regarding whose health we were consulting, was labouring under hysteria. "The secretions," as he termed them, being "all right," my opinion had been asked more with the view of satisfying the friends who were getting fidgety than anything else. The case certainly appeared to be exactly what he said, until, in the course of conversation he added, "she is well fed, and yet she loses flesh, and I don't know why." This remark at once brought us back to the urine, which he assured me was perfectly natural in colour, and contained neither sugar nor albumen. I had some sent to me, and in the end, the case turned out to be the very counterpart of the lad's just spoken of. Although the girl's urine was natural in colour, her life's blood was imperceptibly oozing away with it. This is not a solitary example; I might cite several more to prove that many of the cases called hysteria

* The patient from whom this urine came was sent into the Hospital (under the care of one of my colleagues) from his being supposed to have stone. None, however, was detected, and his symptoms appeared to arise from excessive spinal irritation. At the time the above sample of urine was passed the lad had already been six weeks in the Hospital.

are in reality cases of serious, though obscure, disease; but that is surely unnecessary, for who amongst us has not seen patients die, and yet their disease put down as, only hysteria? The time is, nevertheless, not far distant when we shall learn that hysteria is something more than "mere functional derangement." Hysteria may be a convenient term; but, after all, it is only a cloak of ample dimensions which hides the rags of ignorance. It is a name instead of an explanation, a sham instead of a reality. And what is still worse is, that it tends to keep us in ignorance by stifling legitimate inquiry; for no sooner do the majority of us find a name for the disease than we cease to fathom its symptoms. In some of those cases of obscure disease the excess of urohæmatin in the urine is so great that after it has been set free by an acid and taken up with ether, the ether, after standing, solidifies into a red-currant jelly like mass, and may actually, in some cases, be cut with a knife.

The best way of showing this is to boil four ounces of urine along with some nitric acid in order to set all the colouring matter free. When cool, put the urine into a six-ounce bottle along with an ounce of ether. Cork the bottle, thoroughly shake it, and afterwards place it aside for twenty-four hours. At the end of that time the ounce of ether will sometimes be found to be a red tremulous jelly. Of course such a case is a very bad one; but these are, nevertheless, not nearly so uncommon as one who has not worked at the subject would imagine. The urine in the worst form is neutral or even alkaline.

Sometimes in disease a great part of the urohæmatin exists in the urine in a free state; and in that case the urine is red in colour before any acid is added, although the addition of the acid makes it still darker. These cases are quite different from hæmaturia; for in them the urine is clear and transparent, and devoid of blood corpuscles. If it contains a deposit, the deposit may or may not be high coloured; but in any case the supernatant liquid is clear as well as red. Another fact, which is of great clinical importance, is that the urohæmatin is not always in the same state of oxidation; and, like indigo, its colour depends on the amount of oxygen it contains. So that it may be pale yellow at one time, red at another, and brown at a third. In consequence of this, different acids act upon the urine differently. In one case we may find that the addition of nitric, sulphuric, or hydrochloric acid gives rise to exactly the same results; whereas in another case hydrochloric acid may turn the urine red, while nitric acid only causes it to become yellow. In a third case sulphuric acid may develope the colour of the urohæmatin better than either of the others. Here is the pale urine of a case of chlorosis, and you will observe that both

hydrochloric and sulphuric acids turn it red; yet nitric acid merely changes it to a yellow.

[August 3, 1864.—To-day, while arranging these sheets for the press, I examined a urine which so well illustrates the truth of the foregoing remarks that I cannot refrain from briefly noticing it. It is that of a gentlemen thirty-three years of age. To the eye it appears perfectly normal in colour (of a dark straw tint), the specific gravity being 1030, and the quantity passed about thirty ounces. On adding strong nitric acid to this urine it immediately became of a blood-red hue, whereas hydrochloric had no effect upon it until some minutes had elapsed, when it gradually caused it to assume the same tint as that produced by the nitric acid. When sulphuric acid is slowly added so as to fall to the bottom of the test-tube, a reddish-brown line appears at the point of contact, and this gradually deepens until, in the course of six hours or so, it assumes a more intense colour than that produced by either of the other acids.

This is an important case in another point of view—namely, as proving the value of urinary analysis in cases of obscure disease. The only symptoms that this patient labours under are those of an irregular kind of dyspepsia, with an occasional pain in the epigastrium. He is in easy circumstances, takes plenty of nourishing food, wants for nothing, yet he gradually gets weaker and weaker, and has lost 17lbs. in the course of the last year. Even the locality in which the patient lives is a remarkably healthy one (he was sent to me from Anglesey by Dr. D. Williams, of the Menai Bridge), and if it had not been for the condition of the urine, his symptoms would have remained a mystery. This, too, was one of those cases in which the amount of urohæmatin was so great that it caused the etherial solution to solidify into a jelly.]

An excessive excretion of urohæmatin is not limited to cases such as we have been describing. It occurs to some extent in several diseases, especially those in which there is an excessive tissue metamorphosis, and consequent too rapid blood consumption. Hence we occasionally meet with it in low fevers, in diphtheria, in pneumonia, and some other inflammatory affections, in lesions of the nervous system, during an attack of gout, after the fit of ague, and during convalescence from nearly all grave diseases. It is, however, in chlorosis (either in the male or female), and the many unnameable obscure affections of that class where it becomes a dangerous symptom. In fact, it always indicates the existence of a past or present mischief meriting the closest attention of the Physician, and where we cannot remove the cause we must at least attempt to check the effects of the symptom—namely, to restore to the blood as much as possible of the material which is being drained from it.

Every one knows the effects of iron upon the system, but iron alone is not always sufficient for our purpose. Something more is wanted, and that is best supplied by the preparations called the syrups of phosphate of iron. Many syrups have been sold under this title. There are the American syrups; the compound syrup of the phosphate of iron, or "chemical food," as it is sometimes named; the syrup of the superphosphate of iron and lime (excellent for children); and a few others. One and all of them are good in particular cases, but they must always be associated with a judicious selection of regimen in order that the full benefit may be derived from them.

The preparation of zinc, in grain or grain and a-half doses, are also occasionally useful astringent tonics when the drain is very great.

In some cases of disease the excretion of urohæmatin by the kidneys appears to be diminished; but this is only when the system has been so drained that there is little more to come away. In the last stage of chlorosis a great diminution in the amount of the urohæmatin in the urine takes place; so also in chronic cases of hæmaturia, notwithstanding that the urine perhaps looks red. Likewise in cases of chylous urine, in the albuminuria of pregnancy, and in chronic Bright's disease. In all these cases the blood has already been well drained of its constituents before a marked diminution in the amount of the eliminated urohæmatin takes place.—*Medical Times and Gazette Sept.* 10, 1864, *p.* 271.

34.—CASE OF HYDATID DISEASE (ECHINOCOCCUS HOMINIS) AFFECTING THE KIDNEYS.

By Dr. A. Leith Adams, Surgeon, 22nd Regiment.

Private P., aged thirty-five; countenance sallow and climate-worn; served in India for eleven years. He stated that shortly after his arrival in England from India, in 1855, he began to experience dull aching pains in the loins, especially over the left kidney; and that he had been annoyed by these pains frequently since, but more so during the last three years he had been quartered in Malta. In March, 1862, the pains increased in severity, so that on the 2nd of April he came to the hospital complaining of intense pain in the lumbar region shooting down the ureters into the bladder, but more especially on the left side. It became so intense as to oblige him to walk in a bent position, and lie in bed with his legs drawn up. He complained likewise of a pricking and uneasy sensation along the course of the urethra. His urine was scanty, and the skin hot and feverish. From the intensity of his sufferings it was surmised that one or more renal calculi were making their way into the bladder. Neither

the warm bath, fomentations, nor opiates seemed to relieve him, until the following morning he got up to void urine, but finding some obstruction in the canal he was on the point of sending for aid, when suddenly, after a little straining, he expelled a gelatinous mass, which turned out to be true echinococci cysts. A few were entire, and of the size of a hemp-seed; but the larger individuals were much torn. He voided a few more about an hour afterwards, when the symptoms disapeared, and in the course of a few days he returned to duty apparently cured. For the following four months he continued free from all of the above symptoms, and enjoyed a degree of health he had not experienced for many years, when suddenly, on the 4th of August he was seized with darting pains in the urethra, and a desire to micturate. After making violent efforts for a few minutes, a large torn cyst came away with a copious discharge of urine, which was slightly acid, and contained abundance of epithelial cells. Instant relief followed. On the 18th of the same month he passed one large and several small echinococci, preceded by exactly the same symptoms, and followed by the same result. Again, on the 26th, after a sudden seizure in barracks, he voided a colony of cysts, varying in size from one as large as a pigeon's egg to many entire specimens of microscopic dimensions. As usual, complete relief was the result. On the 25th of September, after an interval of ease, his sufferings returned as before, and lasted for several hours, during which he kept passing large quantities of cysts. The largest individual was much torn, but had evidently equalled a hen's egg in size. On this last occasion he voided more than at any former period. The result was that for eight months he seemed to have got completely rid of the parasite, and his general appearance betokened a decided improvement in health. Suddenly, however, on the 14th of May, 1863, the lumbar pains shooting along the ureters and urethra set in, and he voided a few cysts; and scarcely a week passed that he did not get rid of what seemed entire colonies. Racking pains in his back and limbs, accompanied with constant thirst, loss of appetite, and increasing debility followed, so as to render him perfectly unfit for military duty. Accordingly he was invalided, and sent to England in the following October. Since then he has been discharged from the service.

Remarks.—The microscopic examination of the cysts showed the double circlet of hooks, varying in number (as many as forty were counted on one crown); few seemed complete, having lost many of their hooks either by decomposition or the rough usage sustained during their passage outwards. Occasional hooks were found detached or lying on the surface of the cysts. Each hook was slender, tapering, and acute. Two cell-walls

were distinctly visible, and appeared to be perfectly structureless and transparent until treated with caustic potash and red ink, when they presented a stratified and wavy appearance. The four suckers mentioned by authors could not be made out even by a lens magnifying to 500 diameters. The circlets of the large vesicles were not visible, possibly from having been removed by friction ; there was no difficulty, however, in finding them in individuals as large as a hemp-seed, together with the calcareous corpuscles which were abundantly strewed over the surfaces of the coats. The uniform size of the corpuscles, together with the number and configuration of the hooks, at once distinguish the above from the acephalocyst. From the injuries sustained by the vesicles, the pedunculated buds from which the armed cysts arise could not be made out. Whatever may be the the specific distinctions betwen the two forms of echinococci described by Küchenmeister, and denied by Leuckart, Cobbold, and others, according the the diagnosis of the first-named helminthologist, the individual in question agrees with his description of E. altricipariens seu E. hominis of authors.

The symptoms were in general characteristic of the separation and passage of the cysts, especially when the pain was intense ; but latterly this was not always the case, and it is more than probable he may have voided them unconsciously long before and after they were first discovered. The continued absence of any internal swelling either over the kidneys or bladder, and the non-appearance of hydatid trembling (*frémissement*) on percussion, would seem to indicate that the collection was never extensive enough to give rise to these symptoms. The lumbar pains being generally most intense over the left kidney and ureter led me to suppose that the parasite existed, if not altogether, at least in the greatest abundance in that organ. From the history of the case, there is a probability that the patient contracted the disease whilst in India. According to his own confession, and my experience of his state of health for nearly fourteen years, I have been unable to find out that he had been ever affected by tape-worm, although many of his comrades have been frequently infested by the tænia mediocanellata, which I apprehend is the most common form amongst soldiers. At least, of many heads examined by me, I have not been able to discover any hooks. Moreover, the obstinacy wherewith this parasite almost invariably adheres to the intestine, in spite of a carefully conducted treatment and the most powerful anthelmintics, together with the anatomical characteristics of the matured segment, leave little doubt as to its being a distinct species from tænia solium. I believe, however, the last-named cestode is also to be met with amongst soldiers,

more especially where pork forms a portion of their ration, or at stations such as India, where inferior qualities of animal food are sold in the native bazaars; but as beef is the most general form of animal food on which the soldier subsists, and seeing that the cysticerus of tænia mediocanellata infests oxen, the circumstantial evidence tends towards the supposition that the germ is introduced into the alimentary canal by eating their raw or underdone flesh. Out of 103 carefully recorded cases, I find that 55 men had been frequently in the habit of eating raw portions of beef, mutton, pork, or bacon; whilst 48 stated that they positively abhorred the idea. However, many of the latter preferred their meat ration much underdone. It would seem, moreover, from inquiries I have made that it is no uncommon practice for soldiers and the lower class of English labourers to eat raw meat. Although I have failed in being able to discover cysticerci in either the beef or salt pork supplied to the troops in Malta, there is no lack of "measled pork" in the butcher's stalls in the villages. I lately saw a pig's liver at a stall in a village of Goho charged with cysticerci. The owner, however, soon removed it when he saw it had attracted my attention. At all events, with reference to soldiers, there is no doubt that tape-worm is very common, more so than should be the case amongst a body of men so well fed and cared for. The mode of cooking in the army has, moreover, been defective; but now a system is being introduced which must effectually prevent the introduction of cysticerci by badly-cooked animal food.—*Lancet, October* 1, 1864, *p.* 375.

35.—ON A NEW REMEDY IN THE TREATMENT OF CERTAIN FORMS OF DROPSY.

By Dr. W. Abbotts Smith, Physician to the Metropolitan Free Hospital, and to the Finsbury Dispensary.

In March, 1863, I brought under the notice of the Medical Society of London a remedial agent, which, in consequence of its diuretic and local tonic properties, I had found very efficacious in the treatment of certain forms of dropsy, and as I have since had opportunities of observing its medicinal value, I venture to make it the subject of a few remarks.

The remedy to which I refer is the *Erodium cicutarium*, or common stork's-bill, an indigenous plant which belongs to the natural order Geraniaceæ, and grows abundantly in sandy situations near the sea-side. My attention was first drawn to it by some observations made in the "Medical Times," by Mr. Byerley, F.L.S., of Seacombe, in Cheshire, who stated that it had been productive of great benefit in a case of dropsy which had come under his treatment.

The first case in which I prescribed the erodium was that of a man, of about forty-five years of age, who had been a patient of mine at the Metropolitan Free Hospital, for a period of two months, owing to his suffering from renal disease, complicated with anasarca, and subsequently with ascites. During the time that he had attended as an out patient he had taken squills in small doses, digitalis, scoparium, and many of the diuretics ordinarily given, without any permanent good results. The digitalis appeared for a short time to keep the effusion in check, but it soon lost that power. I had also administered elaterium, the *pulvis jalapæ compositus* of the London pharmacopœia, and other drastic purgatives, but as they certainly weakened the patient without being productive of any adequate degree of benefit in the reduction of the dropsical effusion, their use was abandoned. At this crisis I commenced the administration of the decoction of erodium, in three ounce doses, four times a day, and in order that I might be enabled to form an impartial opinion of this remedy, and also that I might avoid the fallacy of arriving at a *post hoc, ergo propter hoc* conclusion, I ordered the discontinuance of all previous prescriptions. Upon the patient's next visit to the Hospital I had the satisfaction of learning that the swelling of the legs had considerably diminished, and that the abdomen was smaller, as was shown by the comparison of a measurement, made by means of a tape passed round the body, at a point about an inch below the umbilicus, with the dimensions noted upon the occasion of the patient's last visit. The flow of urine was stated to have been very copious. The medicine was continued for three weeks longer, after which time the patient was placed upon a short course of tonics. At the end of November, 1862, he was discharged cured, and since that date he has been able to follow his usual out-door avocation,—that of a cooper.

Another case in which I tried the erodium was of an equally unfavourable character. The patient, a man of about sixty years of age, had suffered from repeated attacks of ascitic effusion, consequent upon enlargement of the liver, caused by excesses in drinking spirituous liquors. The decoction of erodium was given for a fortnight, in four-ounce doses, three times daily, unaided by any other medicine than an occasional compound colocynth pill, for the purpose of keeping the bowels open. At the expiration of a fortnight the abdominal effusion had nearly disappeared, and the patient was subsequently placed upon a course of alterative and tonic medicines, with a more nutritious diet, which soon completed the cure.

In some other cases of a similar nature I have found the erodium valuable. The form in which I have generally employed this remedy is that of decoction, which is best made by placing

two ounces of the dried plant in three pints of boiling water, which should be allowed to simmer until the quantity of fluid is reduced to two pints; the remaining liquid should then be poured off and strained, so as to render it fit for use. An extract has been prepared by Messrs. Clay and Abraham, of Liverpool, but my experience of that preparation is too limited to allow of my speaking decisively of its merits.

I do not, of course, advocate the substitution of erodium for all other remedies used in the treatment of dropsy, as this disease depends upon so many different causes that it would be absurd to suppose that a specific could be discovered for every form of dropsy. I believe, however, that it is often worthy of a trial, and that it will be found a serviceable adjunct to other plans of treatment, especially in the large class of cases of dropsy in which, although we may feel that diuretics would greatly facilitate the cure, we yet hesitate to resort to their use, owing to the serious complications which not unfrequently follow the administration of those commonly employed, through their excessively stimulating action upon the kidneys. — *Medical Mirror, Sept.*, 1864, *p.* 530.

SURGERY.

DISEASES OF THE BONES AND JOINTS, ETC.

36.—ON EXCISION OF THE KNEE.

By W. FERGUSSON, Esq., F.R.S., Surgeon to King's College Hospital, and Surgeon Extraordinary to H. M. the Queen.

It was a great honour done by Mr. Park the surgeon of the Liverpool Hospital to Percival Pott, of St. Bartholomew's, when, in September, 1782, he wrote "a few sheets, in which," to use his own language, "I hope to show that in some of the affections of the knee and elbow, in which amputation has hitherto been deemed indispensably necessary, surgery has yet another resource, which, as far as my reading and experience enable me to judge, has not yet been attempted by any other practitioner .....the resource I mean is the *total extirpation of the articulation.*" Park had actually underlined the latter words, thereby, as it were, upholding impressively the originality of the expression.

Four-fifths of a century have passed since Park thus wrote, and the latest echo to this grand announcement is thus recorded in 1861 by one of the present surgeons and lecturers on surgery: "The excision of joints does not find much favour at St. Bartholomew's. It has been practised only once, and that in the elbow." This refers to the year 1860.

But there are many excuses for the great Percival Pott. If he, as a leading star, took no action on such an announcement, he in this respect but resembled his fellow-mortals. Not a breath, not a pen, not a knife, stirred in England on the subject. Even Moreau the elder, although in a manner inspired by our English surgeon, failed to impress upon his immediate contemporaries any possible value of the "extirpation of an articulation." The modest effort from Bar-sur-Ornain was as little heeded as that from the banks of the Mersey. Although Park and Moreau had shown that which had not previously been dreamt of, each passed to his grave with hardly even a recognition by their contemporaries of the great things they had done. Like many poets and painters, their greatest fame has been posthumous, and my own impression is that even to the present day the value of their labours has not been thoroughly recognised.

It is a remarkable fact that, in referring to excision of the knee and elbow, Park invariably put the operation on the lower extremity foremost. This, doubtless, was because he had operated on the knee first in the living body. Although he suggested both operations, it was reserved for the elder Moreau to have the honour of first performing that on the elbow. This now famous operation was done 26th June, 1797, fifteen years after the date of Park's announcement. The ingenious Frenchman gives Park his full credit, and in that respect differs from some of our own countrymen, who have evinced a disposition to award the honour regarding the early start of excision of the knee to Filkin, of Northwich, who, as stated by his son some twenty years after, performed this operation successfully in 1762. But Filkin's case, like that of Justamond's partial resection of the elbow, had no influence on Park's original conceptions. The knowledge of these cases came to him at second-hand afterwards, and he it was, in fact, who first gave them notoriety when publishing his second case of excision of the knee in 1789. Had it not been for Park himself these cases would probably have been shrouded in everlasting obscurity. They no more detract from the merit of the Liverpool surgeon than do the occasional excisions of the elbow (said to have been practised in the midland districts of England since his time) from the just credit due to Mr. Syme, of Edinburgh, for the revival of the operation.

My present time will not permit much further historical reference. Suffice it to say, that a profound slumber closed upon the efforts of Park and the Moreaus until within our own period. A few spasmodic efforts seem to have been made from time to time, and among our own countrymen none were so remarkable as those of Hewson, Crampton, and Syme. The first two were comparatively apathetic on the subject, and the proceeding was discouraged by the last, who some thirty years ago operated on two cases, from which experience he expressed himself unfavourable to the operation. Nothing, save the usual discouraging historical notice, was said of it for about twenty years, whilst during that time excision of the elbow became an established operation. Often and often had I myself felt deeply grieved to see a well-made foot, totally free from disease, and a leg on which the pathologist would scarcely glance, swept away by amputation in the thigh for disease of the knee. Often did I think of the casuistical expression of those who know no better that "amputation is the opprobrium of surgery!" Why, I thought, should excision of the knee in incurable disease of the joint not do as much in proportion as excision of the elbow in a similar condition? What but bulk, or comparative magnitude, constituted the great difference between the two opera-

tions? If excision of the elbow saved a useful hand and forearm, why should not excision of the knee be equally useful in saving the foot and leg? The comparative size of the limb and joint seemed the grand objection; but here it became a question whether excision of the knee or amputation in the thigh might prove most or least hazardous to life. These latter points seemed to me those of the greatest interest in regard to this proceeding; for whilst we had indifferent results as respects the the condition of the limb after both operations, we had the recorded experience of Park regarding his first case, in referring to it six or seven years after, that the patient had "made several voyages to sea, in which he was able to go aloft with considerable agility, and to perform all the duties of a seaman; that he was twice shipwrecked, and suffered great hardships, without feeling any further complaint in that limb."

It seemed to me that this great question had never yet been investigated. One or two cases here and there did not appear to me sufficient to settle such an important matter.

In July, 1850, I performed the operation on a patient in King's College Hospital in whom all the circumstances seemed most favourable. Whilst there was painful disease, of which the patient was tired, and for which he willingly consented to amputation, there was youth, and apparent health elsewhere. The disease seemed limited to the cartilages, and I could not imagine a more favourable instance for the object I had in view. Yet nothing could have been more disastrous than the result of this operation. The patient died, after sufferings equal to any I had seen follow great operations. In particular, the starting of the limb appeared equal to, if not more troublesome than, any I had ever witnessed in compound fractures of the lower limb or after amputation. A post-mortem examination showed that acute necrosis of the lower end of the femur had ensued.

I confess that I was in some degree daunted by this case; yet, as I had seen as much local mischief and also death occur in equally promising cases after amputation in the thigh, I resolved to suspend my judgment. Not long afterwards, the late Mr. Jones, of Jersey, essayed the operation with more satisfactory results; and as time rolled on, his highly successful repetitions, as well as the operations of others, attracted the attention of many of the young surgeons of the day. Among these I may particularize Dr. Richard Mackenzie, surgeon to the Royal Infirmary of Edinburgh, who, although remarkably familiar with excision of the elbow, took the trouble of a distant journey and voyage to see Mr. Jones's cases and operations. The impression on his mind was such as to induce further investigation; and had it not been for his untimely death, in pursuit of professional knowledge and honour "at the cannon's mouth"

in the Crimea, I have no doubt in my own mind that we might have had by this date an amount of evidence for and against that would have gone far to settle, in the minds of many who still doubted, the very important question as to the eligibility of this operation. Beyond the impression which my own humble exertions and example made, nothing went further for a time than that produced by the active practice of Mr. Jones. That gentleman, in a comparatively limited sphere, operated on fifteen cases, and in fourteen of these with success.

Various pupils of my own devoted special attention to this subject, amongst whom I may mention Mackenzie, Smith, Edwards, and Price; but fortunately there were others on whom my personal influence might be supposed to have little effect, who wished to give trial to this comparatively novel proceeding, and thus the operation was practically tested on a pretty extensive scale. It seems almost invidious to mention names where so many are concerned, and it may suffice, particularly for my present purpose, if I refer to the writings of Mr. Butcher of Dublin, Mr. Pemberton of Birmingham, and Dr. Humphry of Cambridge. These gentlemen have, each in his own way, given remarkable notoriety to this operation, and it was at a still more recent date put again before the profession by Mr. W. M. Clark of Bristol, in a paper of great research which he read to the British Medical Association in August, 1863.

Excision of the knee seems, like all similar operations on other joints, a very formidable process, particularly when performed on the normal tissues in the dead, or when witnessed by any one not familiar with such operations on the living body. The destruction of tissues and parts, on the dead, before the component parts of a joint can be cut away, appears more than human strength can bear or survive; and the chaos of tissues, structures, and surfaces, with, in most instances, the discharge and separation of blood, pus, and substance, perceptible in the living body, naturally lead anyone, as yet uninitiated to this practice, to the conclusion, that for roughness, tediousness, magnitude, and irregularity of surface, the chances of the patient for limb or life are slender indeed. There is scarcely a coarser operation in surgery than excision of the elbow, yet in the present day no one objects to it either on that score or on any other, unless it be some old stagers, who adhere, even in the wane of the nineteenth century, to the customs of their grandfathers. Excision of the knee is simple and elegant in comparison, although it must look formidable in all respects to the novice. It is a common custom to compare amputation and excision, as regards local appearances and facilities of proceeding, and amputation invariably carries the palm. The clean incised wound in the arm or leg for diseases of elbow or knee seems

what might be called a luxury to the patient when compared with the haggling process of excision. Yet in excision the member is left; in amputation it is gone! No human power can restore it. Look to the condition of one who has had his arm amputated for disease of the elbow-joint, and look to one who has had an equally successful excision. No artificial substitute can compare with the human hand!

If excision of the elbow has superseded amputation in the arm as a general practice for incurable disease of the elbow, why should the practice not hold equally good in the lower limb? That is a question which I for years put to myself,—which I still do, though in a less uncertain mood; and it is a question which I avail myself of such an opportunity as this to put again to myself and the profession.

The largest number of collected and original cases with which I am acquainted was made some years ago by my friend and former assistant, Mr. Price. The list amounted to nearly 250, and went to show that the fatality was pretty much the same in excision of the knee and amputation in the thigh. I do not think that as yet we have data of greater importance on this point. The success, or want of success, of amputation in the thigh, as detailed by Mr. James of Exeter, Mr. Bryant of Guy's, or Mr. Callender of St. Bartholomew's, can have no direct bearing on this question until a like number of cases of excision of the knee in the same or similar institutions can be brought to bear on the point. There is nothing in physiology, anatomy, pathology, or practical manipulation, which should make this operation more hazardous to life in proportion to amputation in the thigh, than excision of the elbow is in proportion to amputation in the arm.

My impression is that excision of the knee is, or should be, by proper treatment, as little destructive to life as amputation in the thlgh, and if this be proved and granted, as possibly it may be in time, then I firmly believe that all other objections to this operation must pass away like those which so long retarded the application of excision to the elbow.

The time required for a cure, so called, has been a great element in this operation. It has been common in amputation of the thigh to dismiss patients from hospital, or to give up regular attendance, in the course of three, five, seven, or ten weeks after. Six weeks may be taken as a favourable average period to show the rapidity of cure. Little, or, perhaps, no notice has been taken of some small sores or sinuses still present; nor has the after-course of these, or of the stump, been specially referred to, excepting when, perhaps, many months or years after, there has been a necessity to repeat an amputation for an ill-conditioned stump, or to remove some portion or portions of

necrosed bone. But even then a whisper has never been raised against amputation, or the particular kind of amputation; or, possibly, the surgeon who performed the operation may have been criticized freely, but the fault has never been (and very properly so in my opinion) laid to amputation itself as a surgical operation. In the elbow and shoulder, where excisions are extolled or sanctioned, the wounds are in reality often slow in healing; months—aye, years—elapsing in even most satisfactory cases before the sinuses are perfectly healed. But in such instances the patients can move about with seemingly little defect. The arm can be carried; but if anything prevents the lower limb doing its proper carrying function the defect is more manifest. As the knee is big in proportion to the elbow, so may the entire healing process in excision be longer in proportion; and as the subsequent strain upon the lower limb is greater than that upon the upper, so must there be greater time given for a perfect result. These features, with a slight variety, are admitted between stumps of the lower and upper extremities, and they seem to me to be equally worthy of attention in the cases of excision.

But in my opinion a mistake has been committed in such comparison; for the wound in all great features is not different from that of amputation, and the continued presence of the lower part of the limb constitutes such an important fact, as compared with its absence, that it seems to me a waste of time and argument to dwell further on this question. The true comparison of excision of the knee is with compound fracture of the lower end of the femur or upper end of the tibia, possibly communicating with the knee-joint, or with a direct penetrating wound of the joint itself, which has exposed the interior to the surrounding air. If I am not much mistaken, the feeling in modern surgery is, that time is of little moment contrasted with a useful and therefore creditable limb. If months, even years, elapse before such results are effected, does surgeon or patient ever begrudge the time? Is there a surgeon of experience who has not felt his heart palpitate with pleasure on looking at one of these illustrations of the powers of nature, and of his own faith and skill, in bringing about such a pleasing conclusion? Suppose a compound fracture—say of the shaft of the tibia: has he not been gratified, even after the separation of inches of necrosed bone, to see a useful limb retained? Does he not feel in his heart that Ambrose Paré and Percival Pott did not live and suffer in vain?

As a compound fracture in the lower extremity is uncertain and slow in healing compared with a simple one, so may the wound in excision of the knee be compared with the healing of a stump. But, to put this part of my argument briefly and on

a practical basis, I admit freely that such wounds are generally more slow—much more slow, in healing than others; yet I have seen after excision of the knee what I have never seen after compound fracture of the tibia—patients walking about freely, on crutches, eight weeks, six weeks, even three weeks afterwards; some even putting the foot to the ground with a pressure which no stump of the thigh could have borne at such a date. But I must refer to this subject again, and to give it justice I must bring others under present notice.

The condition of the limb afterwards has, perhaps, attracted most attention. In a brief lecture like this, and coming near the end of it too, it would be impossible to notice all that has been said on this subject. The result in Park's first case seems to have been almost overlooked. From 1789 until within these few years all by silent assent seem to have sanctioned the conclusion that a stump in the thigh and an artificial limb, whatever its kind, were better than protracted disease or death. Excision well-nigh slept, and, with perhaps the exception of what had been done and said by Crampton, Syme, myself, and Jones, no one seemed to have thought seriously on the subject.

[To the fact that, after excision of the knee in persons under full size, the limb does not grow in proportion to the other, attention was first drawn by Dr. Humphry, of Cambridge, and Mr. Pemberton, of Birmingham. In some cases the limb actually ceases to grow, and is out-stripped by its fellow some five or six inches.]

This is hardly the time or place to discuss the merits or questionable points of Dr. Humphry's ingenious and admirable papers on the growth of bones in their long axis at their epiphysial cartilages. I mean, therefore, to allude to them briefly. They seem to have been suggested chiefly, if not solely, by excision of the knee, and their main object appears to be that of pointing out generally that long bones grow in length entirely at the cartilage at the end of the bone next the epiphysis, and particularly that the femur grows in length chiefly at its lower end, where it joins or is joined by the epiphysis. The practical deduction from this is, that if, in resection of the knee in a growing subject, the epiphysis and epiphysial cartilages be cut away, the femur will not grow in proportion to the rest of the body; and hence a serious objection has been raised to the operation in young persons. This matter was first hinted at in Dr. Humphry's paper read before the Medical and Chirurgical Society in March, 1858, and was more elaborately worked out in subsequent papers laid before that Society in 1861 and 1862. The same author has alluded to the subject in his valuable "Treatise on the Human Skeleton," published in 1858, and he

there comes to the conclusion that in such instances, when the tibia and femur might unite by ossific junction, "the objection urged against the operation might prove valid."

The union of physiology, science, and practice here has given great force to the observations of Dr. Humphry; but attention was still more prominently brought upon the subject by a remarkable paper published by Mr. Oliver Pemberton, of Birmingham, in 1859. The main object of this paper was to show that in a youth operated on for excision of the knee in 1854, the limb in 1859 was nine inches shorter than its fellow. Another analogous case is cited from the practice of Dr. Keith, of Aberdeen, where, in the course of "nearly six years the deficiency of growth is measured by five inches." To add to this objectionable feature in Mr. Pemberton's case, there was no bony union; and in Dr. Keith's case, at the end of the time referred to "the union was not strong, and there was a bending outwards."

But the true parallel, the true value of excision of the knee has never yet been drawn to its full extent, in as far as I am aware. Life—life and comfort may be considered as the highest and best result of surgical interference in a case of incurable disease of the knee-joint. Even yet we have not sufficient data on those heads. My own impression is that the question of life between amputation and excision will be pretty nearly balanced; indeed, I shall venture a step further, and say that if excision were to get all the subsequent comparative advantages willingly given to amputation, the hazard of one operation would be less than that of the other. If I am not mistaken, an idea prevails that excision of the elbow is in reality a safer operation than amputation of the arm; but such is not mine. Few fatal cases of this excision have been recorded, but I have seen as many as to convince me that the mortality is probably as great as that of amputation above the elbow. Happily, such a result is rare in either instance.

Whatever the mode of amputation, it must be acknowledged that neither skill, forethought, manipulative perfection, nor after treatment, whether local or constitutional, can invariably avert some of the evils (less than death) which are known from ample experience to follow such an operation. The occasional evils of secondary hemorrhage, of unusual retraction, of scanty covering, of chronic sore therefrom, of caries or necrosis, of tender cicatrix, of neuroma on the great nerves, and of secondary operative interference, have all been in a manner ignored in this comparison. And yet how often have all men of experience seen cases of the kind. Neuroma is certainly rare in the lower limb; yet, allowing the most perfect result—allowing the stump to be above criticism, what is it after all? It is only a portion

of thigh whereon to fix an artificial limb. If this cannot be done, the sufferer must ever after be dependent on crutch and stick.

I beg it to be observed that I do not bring these features forward as objections to amputation in the thigh in cases where the operation may be deemed absolutely necessary. If that dire proceeding must be, patients must take their chance. Surgery can never entirely avert the occasional necessity for amputation, but in the case for which I now speak I maintain that she frequently can. And now let us see the case of excision. The foot and leg are left; the limb is shortened positively by the length of bone taken away—say from two inches to four. Allowing for the loss of growth in length before operation, and for arrest of growth after the operation—say five inches, say nine inches; allowing even more, the lower end of the thigh, the leg, ankle, and foot still remain. It is worthless in surgery to compare a bad stump with a bad lower limb after excision. Take the perfection of a stump, even in the estimation of the most critical and with even a medium limb after excision, and the comparison will not stand for an instant. With the best results, it seems absolutely absurd to compare the two.

In the general comparisons hitherto made I take leave to set aside the evils of excision, as drawn or indicated by the authorities already named, as exceptions to the rule, and as being equalled in evil in most respects by those following amputation; but I say unhesitatingly that if the comparison is drawn between the perfect stump and the perfect result of excision, the comparison is just as unreasonable as that between an artificial limb and one of flesh and blood.

Inequality in the length of the upper extremities is of little moment, but it is awkward, to say the least of it, in the lower, as we frequently observe after fractures and after disease of the hip or knee in early life. Such inequality may, in some instances, be attributed to bad treatment, but it often occurs despite the best skill in surgery. Yet who would in such a result say that the patient would have been better with the limb away by amputation? Who does not think that when a person gets well of a diseased knee or hip, with shortening even to the extent of five or nine inches—no uncommon result,—he is yet somewhat fortunate—fortunate in not having had amputation performed on his thigh. We do see occasionally cases of great distortion of the lower limb after disease of the knee, but even these patients sometimes congratulate themselves on having the leg and foot. In some few such cases amputation in the thigh has actually been performed years after the so-called cure. Yet in such cases it is not our custom to lay blame on the treatment which may have been adopted, although I believe

that it has often been highly defective. Whatever the amount of distortion after the cessation of disease in the knee-joint, I hold that, excepting very special cases, amputation is unjustifiable, as resection of the distorted knee is both safer and better. But I shall not press this point at present; let me rather again draw attention to the fact, that we never cry out against either nature or the surgeon in cases of shortening and distortion of limbs after disease. Yet such defects are common. Whilst meditating these remarks, I have rarely known a day in taking one's ordinary rounds that I have not observed persons walking in the streets with shortened and distorted limbs after disease of the knee. Most of them have moved more nimbly, and with greater apparent security and comfort, than if on the artificial limb after amputation of the thigh. Yet shortening has in a manner become the bugbear of excision of the knee. I admit that it is a defect, but abstraction or excision and arrest of development are evils elsewhere as well as here. Again, I admit that in this locality disparity of size, particularly in length, is an awkward circumstance. Let us see, however, in what this consists? A difference of three, five, or nine inches! What is the contrast which has been drawn with this defective limb? It is with its neighbour! And here I imagine we hit upon the weakest of all the objections hitherto made to excision of the knee. The risk of loss of life, distortion, uselessness of that which is preserved, are all serious objections or blemishes to this proceeding. A short leg to a long one is, I again admit, a defect; but in this respect surgery no more fails than Nature does after disease. What, I ask, is the alternative for excision of the knee proposed by those who object to this operation? It is amputation in the thigh! I cannot allow that which might be an easy answer to the question,—Why perform an operation at all? Why not cure the disease, and thereby avoid amputation? That is a question of a totally different kind. I am not now discussing the question of amputation, or continued, and possibly other treatment to save the limb. It is the question between excision and amputation as regards the future condition of the limb. In ordinary amputation under such circumstances, half the thigh, or possibly two-thirds, may be left. The body is mutilated to nearly the entire extent of one extremity. Say what you may as to the quality of the stump, there is left a shortened femur, a shrivelled thigh; emphatically a stump. Even Samuel Johnson's explanation of the term gives an exalted idea of the noun substantive which scarcely holds good with us: "The part of any solid body remaining after the rest is taken away," is a flattering description of one of our stumps of the thigh. It is in reality with us barely more than a peg whereon to hang an artificial limb. In youth, in middle age,

in advanced years, it never improves. It never can be more than a shortened bone, with shortened and shrivelled materials around; and this even with the perfection of a stump. The defective results of excision I am disposed, in accordance with what I have said before, to class with defective stumps. In justice to the subject I now deal with, I take a fairly perfect result of excision. Whatever the shortness, that may readily be made up by a high-soled boot or shoe. There are left the lower end of the thigh, nearly the whole of the leg, the ankle and foot; the former two slightly damaged, the latter unscathed. The foot, leg, and thigh do as much as in the cases of distortion or shortening after disease; and who, under such circumstances, would compare an artificial substitute to the limb of life?

But I cannot leave the argument here. A well-healed stump never in reality improves, unless, possibly, it gets somewhat more callous, whilst often it gets more tender and irritable; but the seeming perfect result of excision at the end of six or twelve months (just when stumps are generally at the best) is no criterion of true perfection. If the limb is properly managed afterwards, it goes on improving for months—aye, for years. Without again discussing the question as to length, and without applying the remark to all, I can affirm, from ample experience in my own practice, that thigh, leg, and foot enlarge in bulk; and, in particular, that with this change the leg and foot improve in muscular energy. It may to some be more impressive when I say that the calf of the leg shows again in increased muscularity and vigour. This observation has never yet, I believe, been dwelt upon by those who have written of the good qualities of limbs after excision; but it is an important fact, and one which, in my opinion, goes far to balance that of shortening, which has been so eagerly put forward by writers previously referred to.

I do not think that the value of the human foot has been sufficiently estimated by those who amputate, or even by some who advocate excision. It is certainly as wonderful in its mechanism, if not more so, as any of the organs of special sense; and, without drawing a useless comparison between it and the hand, it is certainly in its entire state a thousand times more perfect, as part of the future support of the body, than the point of a thick stick, or any fabricated imitation of a foot. We see persons walking about with limbs shortened from various causes; some with high-soled boots, some with apparatus of iron, some with a pin of wood to make up the proper length, each with a foot of tolerable dimensions and vigour. Whatever we may say to grace or symmetry in these cases, we yet, under ordinary circumstances, consider that a fair compromise has been made with formidable disease. Even as an un-

fortunate maimed one who has suffered amputation in the thigh halts along, we may pity him as the victim of incurable disease, yet we claim his case as a bright illustration of the powers of surgery. The foot is rarely thought of, whether it has been swept away by amputation, or it be a portion of a shortened distorted limb. Yet I doubt if there is any substitute at all to be compared with it.—*Lancet, July 9 and* 16, 1864, *pp.* 31, 59.

37.—ON WOUNDS INTO LARGE JOINTS.

By Dr. Wm. Stuart Monro, Surgeon to the West Hartlepool Iron Rolling Mills, and Iron Ship Yard, &c.

Out of a large Surgical practice I select the two following cases of severe wounds penetrating into large joints, which I think are sufficient proofs of what may be accomplished in saving limbs, though in the case of a working man I am decidedly of opinion that it would be preferable had amputation of the leg been at once performed in the latter case:—

John Harrison, aged thirty-three, a labourer on this railway, of temperate habits and previous excellent health, when at Coxhoe on duty on the 16th of April, 1862, fell off a waggon when in slow motion, and a part of the wheel coming in contact with the left elbow broke the humerus into several pieces in the joint, and also the same bone at about an inch above this articulation, where it projected through a hole in the integuments. The olecranon process was also detached from the ulna, and a small hole over it was in the skin; the radius was also broken in its upper third, and there was a small hole over the external condyle opening directly into the joint.

The accident happened about 12 noon, and he had to be removed hither, a distance of 35 miles, before any surgical assistance could be procured. During this journey, which occupied three and a-half hours, he lost a very large quantity of blood.

On his arrival a Surgeon was in immediate attendance, and called in another Medical gentleman, when it was decided that the arm must come off. To this, however, the man, and his friends objected, and when I was called in the case appeared so doubtful that I proposed to operate as if for excision of the joint, and remove all the broken pieces—there being no sign of any injury having been done to the ulnar nerve, and the pulse at the wrist was as good as could be expected after such a loss of blood.

I saw no more of the case until the 18th, when I was again called in to meet Mr. Foss, of Stockton. The arm was now much swelled and discoloured, and the pulse at the wrist much

smaller and weaker than at the other arm, and evidently labouring to overcome the increased local pressure on its circulation. It was now deemed too late to excise, and every means were at once adopted to save the arm.

April 19.—Bowels freely opened; tongue slightly furred; pulse smaller and weaker in the injured than in the other arm; swelling and discoloration a little increased since yesterday; considerable anxiety in countenance; did not sleep well last night; feels very weak. Is ordered beef tea and a little wine.

20th.—Slept very badly, which he ascribes partly to the position (on his back) in which he was compelled to lie since the accident, and partly to the close bed (one in a wall) to which he is confined. His countenance is very anxious, his arm more swelled and discoloured than it was yesterday, and its pulse very weak, evidently approaching stagnation. Ordered to get six leeches applied immediately to the front of the arm and to diminish the quantity of wine during the day.

Vesper, 20th.—Leeches bled well, gave great relief, reduced the swelling and a little of the discoloration. Have lifted him out of bed, placed the arm in an open case, and made him comfortable for the night in a large chair.

21st.—Swelling still troublesome, but he is now in much better spirits. Slept a little last night, and is considerably refreshed. Pulse at the wrist of injured arm still much smaller and weaker than at the other.

22nd.—Have had to reapply the leeches, the discoloration having increased so much as to create alarm. The swelling, however, is not so great as on the 20th, and he is in excellent spirits.

25th.—All has gone right since last report. He is now placed on generous diet, sleeps well, is in good spirits, and has the arm, which is placed firmly in the supine position in a wooden case and suspended by a sling from the neck, dressed morning and evening with large plasters of strong turpentine liniment. The wound where the humerus projected through the skin is nearly well, and the other two have coalesced into one. When dressing, the cartilage on the ends of the humerus and radius can be distinctly seen and synovia running out of joint.

May 2.—Everything has gone on well since last report. Upper wound completely healed and the other one contracting gradually, though when passive motion is practised in the joint the radius can be seen to move freely on the humerus. The turpentine dressing gives him no pain, and he is now allowed to go out.

20th.—He is now able to attend at the surgery; wound into joint healed; there are signs as if small portions of the olecranon would come away.

September 6.—Has now been at work as a gate-keeper on a railway crossing for a month. He is gradually recovering the use of his arm in the motions of flexion and extension, but those of pronation and supination are almost entirely gone. He has no pain in the joint, and his general health is excellent.

August 15, 1864.—Since last report several small pieces of bone came away from the olecranon, but none within the last nine months. Has now a very useful arm, and is in the very best of health.

James M., aged forty-five, a healthy and sober man, of a spare habit of body, and by trade a rigger in the iron ship yard here, when at work aloft on December 30, 1863, lost his footing, and made a spring to save himself, landing on the ground on his feet after falling nearly ten yards.

When carried home he was found to have not merely sprained his right ankle, but to have nearly completely smashed the astragalus and broken the tibia and fibula in the left leg within about one inch of the ankle-joint.

He would not hear of amputation, so an effort was made to save the limb by placing it comfortably and firmly in McIntyre's splint; his diet was ordered to be liberal, and as all the functions of the body were properly carried on, no general treatment was adopted.

January 25.—As he has been complaining of sharp pain in the outer ankle for a few days past, the bandages and splint were removed, exposing considerable inflammation and threatened sloughing at the seat of pain. Poultices were ordered to be applied.

27th.—A large slough came away last night, leaving an opening into the joint about the size of a walnut, and about two inches of the fibula (now united) exposed and quite bare. Treatment ordered to consist of good support, stimulants, and turpentine liniment dressings.

June 14.—The wound has been gradually healing under the treatment, but there is about half an inch of the fibula remaining uncovered, and a small aperture on the dorsum of the foot, through which a probe detects the roughened surface of the astragalus.

July 15.—The exposed piece of fibula, weighing one and a-half scruple, has come away, but a little thick pus still escapes from the aperture on the dorsum of the foot.

August 15.—Not being able to support himself longer, he was compelled to apply to the Parochial Board for relief, and is now, I believe, an inmate of the Sunderland Infirmary, though before he removed thither he was able to bear the weight of his body, in the acts of standing and walking, on the injured limb.—*Medical Times and Gazette, August* 27, 1864, *p*, 219.

38.—ON THE WIRE COMPRESS AS A SUBSTITUTE FOR THE LIGATURE.

By JOHN DIX, Esq., L.S.A., Surgeon to the Hull and Sculcoates Dispensary, &c.

[The method of arresting hemorrhage known as acupressure is well known to the profession, but has we think not been tried to the extent which it deserves, especially by the London surgeons. Some have tried it and abandoned its use, others who have tried it continue to employ it and speak favourably of it.]

For myself I early made trial of the needles. My case—an amputation of the arm—is published in detail in the Medical Times and Gazette of 2nd June 1860. As there related, I was to a certain extent pleased with the process; but I also observed in it certain inherent disadvantages.

Most, or all of these, as it seemed to me, might be obviated by the use of a fine iron or silver wire instead of the steel needles, the principle of action being the same, and the mode of application not dissimilar.

So soon as opportunity offered, I put this idea to the proof. The results are the subject-matter of this paper.

Having satisfied myself of its feasibility by some experiments on the dead, I first used the wire on a living subject in a case of amputation of a finger, in September 1860.

The patient was a woman, aged fifty years, affected with constitutional syphilis, the second finger of whose right hand required removal on account of caries. The head of the metacarpal bone was covered over by a single flap, taken from the internal lateral aspect of the finger. Two arteries were secured by compression—a fine silver wire being used for that purpose. These wires were removed on the third day. There was no bleeding, and the wound healed readily, though not absolutely without suppuration.

Encouraged by this success, and convinced of its safety, I next used the "wire compress"—as I propose to designate this method—in the same patient, upon whom Chopart's amputation was performed (April 26, 1861), for extensive disease of the cuneiform and adjoining metatarsal bones.

The operation was done in the usual way—a long flap being cut from the sole of her foot. Five bleeding arteries were secured by silver wire, in the way about to be described. The flap was carefully adjusted, with many sutures of iron wire, and from the appearance of the stump, the universal verdict of bystanders was, "*that* seems a great improvement on the needles."

On the 28th, viz., forty-eight hours after four of the wires

were withdrawn without difficulty and without bleeding; and on the 30th, or fourth day, the remaining wire, which commanded the posterior tibial artery, was in like manner removed. It was found that the wire was easily applied, as easily taken away, and entirely effectual for the purpose it was intended to serve, viz., the arrest of the bleeding from the cut vessels.

The patient, as I have before explained, was the subject of constitutional disease, and the case did badly from the first. There was sloughing of the entire surface of the wound, and this process gradually involved the substance of the flap, which was ultimately almost entirely destroyed.

This was an unfortunate thing for the patient, and not very satisfactory to the surgeon; but it was certainly advantageous to science, inasmuch as it put this method of securing arteries to the severest possible test, and also gave me an opportunity of observing the process and its effects more closely and accurately than would otherwise have been possible.

So soon as the sloughing action set in, the sutures were removed, and the flap opened out, and thoroughly cleaned by gentle washing. Thus it happens that I am in a position to to speak positively about the action of the wire compress upon the arteries so treated. It was found then that the continuity of the vessel was not destroyed where it was compressed by the wire; it was not divided, nor was its terminal portion cut through as by the ligature. The patulous end was securely sealed and closed, instead of sloughing away, as necessarily happened when a silken thread was fastened thereupon, which could only be got rid of by destruction of the tissue upon which it was fixed.

Nor can anything more clearly prove the firmness and security of the adhesion, which this process excites in the vessel itself. Every surgeon knows how common is secondary hemorrhage in a sloughing stump, and understands the reason why. I certainly expected it in this case. I think I have observed before, in cases of hospital and other forms of gangrene, that an artery is by no means the first tissue to slough. Its tough and well nourished coats often resist the destructive process longer than surrounding textures, and the length of time required for a ligature to become detached from a large artery, confirms this view.

But however this may be, it is certain that in this case the divided ends of the arteries exhibited healthy granulation, whilst other tissues were sloughing around. I shall have occasion to refer to this highly important and interesting observation again by and by.

This patient progressed from bad to worse; unhealthy suppuration and sloughing extended up the ankle in the sheaths

of the tendons, and ere long pyæmia set in—of which she died on 9th May, being thirteen days after the amputation.

I related these cases at a meeting of the East York and North Lincoln Branch of the British Medical Association, on 22nd May 1861.

The third and last case in which I have used this method was an amputation of the thigh, of which the following is a brief history:—

A. W., aged 20 years, had suffered from disease of the right knee-joint for 11 years, by which he was so dwarfed and emaciated that his appearance was that of a child of 14. There were sixteen discharging sinuses, and his weight was three and a-half stones.

21st Sept., 1861.—Amputation was performed according to Mr. Luke's plan, viz., the posterior flap was first made by transfixion, and the anterior, of exactly similar size, by cutting from the surface down to the bone. The bone was sawn at the junction of the middle and lower thirds. Five wires were applied upon as many arteries, and with the femoral artery the femoral vein was intentionally included. Two small arterial branches were treated by torsion. The flaps, which fitted well, were accurately adapted by means of wire sutures, pads of lint, and strips of plaster.

The case went on favourably in every respect; there was very little bleeding at the operation, and none afterwards. The lad immediately ate and slept well, and was evidently much relieved by the removal of the offending member.

On the 24th, being seventy-two hours after the operation, four of the presse-artère wires were withdrawn with perfect ease and without bleeding. The wire upon the femoral artery remained till the 26th, that is, five days altogether, when it too was removed, without any difficulty and without a trace of blood. At this time considerable union had taken place between the flaps, but there was slight suppuration about the deeper parts; so that when I related this case at a medical meeting on October 9th, being the eighteenth day after operation, I spoke of it as a forward stump, and hoped for an early cure. In this I was disappointed; for although the lad improved in health and appearance, and was soon walking stoutly on crutches, still the stump did not heal. Three or four sinuses remained, discharging pus of a thin unhealthy character; the granulations were feeble and flabby, with occasional outbursts of more acute suppuration.

The explanation of all this was subsequently found in a necrosis of the sawn end of the thigh bone. A considerable ring of this was gradually loosened, and cast off in the usual way; and when found to be detached was removed by an incision made into the face of the stump. In a few days after

this the whole was soundly healed. It has continued so ever since; the lad walks particularly well on a common wooden peg leg, and is now ripening into a man, and earning his own livelihood as a railway clerk.

What then do these cases prove with regard to the method employed for securing the vessels; Simply this, that it is practicable, efficient, safe, and manageable, nothing more. As yet I can show no positive results better than might have been obtained by the use of ligatures in the usual way. The great desideratum, primary union, has not as yet been arrived at. Any advantages then that may be claimed for this procedure at present rest *chiefly* on theoretical grounds; not *altogether* so either. Surely it has some superiority, indisputable and demonstrable, over the ligature, as I now propose to show. In pursuance of which object it will be convenient, first, to consider the effect, action, and results of the ligature.

It will probably be conceded by most surgeons, that a ligature is at best a necessary evil. It is a great nuisance in a wound, and the chief obstacle to primary union in many operations, and especially in amputations. Union by adhesion, after a large amputation, is an occurrence of extreme rarity. The recollections of a long surgical experience furnish but here and there an isolated case. Many men will say they have seen it once (I have met with no one who has seen it *more* than once), whilst many do not believe in it at all, and even doubt its possibility.

But how constantly does one read, in reports of surgery, such a sentence as this; "fifth day, complete union *except in the track of the ligatures.*" Such cases every one has seen; they are common enough. Surely then the inference is not far-fetched or illogical, that, but for the ligatures, suppuration might often be altogether avoided. What indeed, is a thread of silk or hemp between the flaps but a miniature seton! The whole number of ligatures collectively would form one of considerable size, and are a necessary and certain exciter of suppuration; such a seton being, in fact, the very means we use when we wish to set up or to maintain this process.

Again, how is a ligature detached from the vessel to which it has been applied? Why, by ulceration! another unhealthy and objectionable process. The part of the artery encircled by the thread dies by strangulation, whilst a further portion, which has been drawn out and detached from its sheath for the application of the ligature actually sloughs away.

This drawing out of the artery by the forceps is of itself bad, as it breaks up the vascular and nutritive connexions of the vessel, and so retards those vital and physiological processes by which the closure and permanent sealing up of the cut tube is

effected. How frequently, too, is this disturbance of the vessel itself, and of the reparative action going on around and within it, renewed by traction made on a ligature, supposed to be detached when it is not really so. In this way also it occasionally happens that a considerable piece of the artery above the site of the ligature is plucked away,—fully half an inch I have seen ere now.

The suffering occasioned by this experimental traction, be it futile or successful, is horribly familiar to every patient, and dreaded by every humane dresser. The pain of dressing a stump is over when once the ligatures are all out.

The knot of a ligature (often deeply buried between the flaps) cannot be withdrawn without breaking up whatever adhesion has taken place betwen the site of the artery and the edges of the integument. Hence, will occur bleeding from torn granulations, and manifest derangement of the healing process.

Again, a ligature once applied, the surgeon is at its mercy (so to speak), and the patient too. Who can say when it will be thrown off? I know a gentleman who carried one in his arm eleven months after amputation. I remember another, who, having had his testicle excised, had two ligatures remaining in the unhealed wound to the day of his death, which happened several weeks after the operation. It is obvious that so long as a thread remains a complete cicatrization is impossible.

But I must push this argument a little further. I need scarcely dilate on the advantages of primary union could it be obtained. Time is an important element in most cases. A cure by adhesion is the work of but five or six days, the secondary processes require nearly as many weeks. But there are other considerations far more important than this. For instance, what are the chief sources of danger from amputation?

First and foremost, the much dreaded pyæmia; which, it is said, kills half those who die after amputation.

And the parent of pyæmia is suppuration. So soon as the secretion of pus commences so soon is there danger of purulent infection, which occurs not at all during healthy adhesive repair. Who will gainsay the intimate relation between suppuration and the ligatures? Have we not seen that they are almost inseparably connected, and that the ligature may be, and indeed often is, an active source of pus formation.

The next most fatal accident is secondary hemorrhage, which arises chiefly or altogether from the ulceration or sloughing of an unsealed artery. And have we not proof that this very ulcerative process is set up *in the vessels themselves* by the ligatures? It is a necessity of the case, part and parcel of the natural action of the thread, which cannot in any other way be got rid of. On the other hand, it is not very clear why, except

for this necessity of casting off the foreign body, ulceration of an artery should ever occur, at least in a healthy stump. Yet it happens not unfrequently that bleeding occurs, even when reparation is well advanced, and everything appears to be going on favourably.

Surely these are striking and remarkable facts, and demand our most serious attention. Here are two unhealthy processes, the grand sources of the most fatal sequelæ of amputation, shown to be intimately mixed up with or actually inaugurated by the very means we use to stop the bleeding. I said that a ligature is at best a nuisance. I hope to show that it is no longer a necessity.

Yet I am prepared to hear, as I have heard before in discussions on this subject, that some surgeons are content with the results of the ligature.

Such I would ask to call to remembrance their cases of pyæmia and secondary hemorrhage following operations, and to remember that in their ligatures they have, to say the least of it, *a possible incentive* to both these dangers.

I entreat them to ponder over the following formula:—

Pyæmia is the offspring of purulent formation, of which the ligatures are an efficient and probable cause.

Bleeding arises solely from ulceration of a bloodvessel, of which the *primum mobile* is again the ligature.

Contrast with the foregoing statement (unexaggerated and unprejudiced, as I believe), the effects and action of the wire compress. I unhesitating assert that, from one and all of these objections to the ligature, it is almost or altogether free.

Thus, it has not to be detached by ulceration, neither does it give rise to this unhealthy and undesirable action. On this point I speak positively from absolute proof, as related in Case 2.

It has little or no tendency to excite suppuration, and certainly does not necessarily, or even usually, occasion it. This is in accordance with the well-known pathological law, that metallic substances, from not absorbing fluids, and perhaps from other causes not so well understood, are freely tolerated in the living body, and often remain therein embedded with perfect impunity for any length of time, not causing suppuration, ulceration, nor even irritation. Frequent experience of metallic sutures has proved this to the satisfaction of most surgeons, and it needs not to be further dwelt on here. It is an accepted fact in surgical pathology.

Again, the wire compress is applied without disturbance of the natural relations and vital connexions of the vessel. It is removed at any time according to the will and judgment of the surgeon, without any interference with the adhesive repair which

may have taken place in the artery, and in the rest of the stump, almost without pain to the patient, and entirely without those torturing attempts and uncertain trials which appertain to the withdrawal of the ligatures. To which, I may add, that the wire once properly applied, is not liable to loose its hold, or become detached too soon, as not unfrequently happens when a thread is tied upon a brittle diseased artery, or upon a bleeding vessel in a sloughing wound, as, for example, in secondary hemorrhage from hospital gangrene,—that twigs of nerve, if accidentally included in the embrace of the wire, are not injured and excited as by the tight strangulation of a ligature. Hence there will be but little or no twitching and jumping of the stump, which was an observed fact in the cases here narrated.

And, lastly, it is quite easy to compress the adjacent veins along with the arteries if it be deemed desirable. It is certainly well to do this if the veins show a tendency to bleed, as thereby all oozing and formation of coagula between the flaps—than which there is no greater obstacle to primary union—is entirely prevented. Even those who fear to tie a vein need not dread any ill results from the simple compression of it.

Surely all these collectively form an aggregate of no mean or trivial advantage as compared with the ligature.

It may be thought that the few cases in which this plan has been tried, are but a small experience on which to speak so confidently, and almost didactically. It is right, therefore, to state, that what is here advanced is deduced not from these cases alone, but also from the recorded results of acupresaure, which has been successfully used in numerous instances, and which offers many of the advantages, and confirms most of the conclusions on which is based this advocacy of the "wire compress." *This* is in reality but a modification of acupressure, from which it differs in detail rather than in principle or *modus operandi*. Hence it is that I lay no stress on originality in the matter; this merit, so far as I know, belongs to Dr. Simpson alone. Yet, I believe the substitution of the wire for the needles to be a decided and important improvement, as *it* is free from most of, or I may say all, the shortcomings of "Simpson's skewers," as the acupressure needles have been irreverently called.

The following may be mentioned as the chief defects of the needles:—When several of them are required, the stump resents as it were being thus pierced through and through in many places and in various directions. From this cause, and from the obstruction to the capillary circulation caused by the pressure of the unyielding steel, we find much tension, œdematous swelling, and in some cases very great pain. The pain especially has proved a very serious evil, so much so as to lead one surgeon

to my knowledge to abandon the use of the needles entirely. Again, their projecting ends, and the puckering they cause in the substance of the flaps, interferes very much with that accurate adjustment of the cut surfaces and edges, which so greatly aids the chances of union by adhesion. None of these objections apply to the "wire compress."

The first point is with regard to the mode of application of the wire which may be best done in the following manner: take a piece of surgical wire, 6 or 8 inches long, and thread each of its ends upon a straight needle.

Seize the bleeding mouth of the artery with forceps, and pass one of the aforesaid needles close on each side of the artery, about a line above the points of the forceps, directly down through the substance of the flap, so that they emerge at the cuticular surface, about half an inch distant from each other. Draw them both through together, till the curve of the wire compresses the vessel on the face of the flap. Now, get rid of the needles by clipping through the wire close above their eyes, also detach the artery forceps. Place a piece of cork cut for the occasion upon the skin between the points of exit of the wire, and over this twist the wire tighter and tighter till the bleeding is arrested. Lastly, cut off the superfluous wire. All which is done much quicker than described. Repeat this process upon as many vessels as require it.

Two arteries lying near together may be embraced by one wire; and, as I have said, the veins may be included or excluded at will.

The wire should be either silver, or, what is much cheaper and equally manageable, the finest and softest passive iron. The generality of the iron wire used for sutures is too hard and stiff. That which I have employed was supplied by Mr. W. B. Hilliard, surgical-instrument maker, Glasgow, who also furnished the needles, which are about three inches in length, straight, and three-edged, with an eye adapted for carrying wire.

Special care is necessary in threading the wire, that it be kept perfectly free from all kinking or twisting. The forceps are used, not to draw out the artery, as when a ligature has to be applied—this, indeed, is to be *particularly avoided*—but merely as a guide to mark the exact position and course of the vessel. The cork is necessary to protect the skin from the pressure of the wire. The stump will now be dressed according to the fashion of the operation.

Of course, objections will be raised to this scheme. The only one to which I need reply by anticipation, is that which naturally occurs to any one looking at the thing for the first time. How is that wire to be *withdrawn?* This, at first sight, appears

an insuperable difficulty. Let any one who entertains that idea try the experiment on the dead subject, and he will probably be surprised, as I was, to find how easily and certainly it is effected. To which he may add, my *experimentum crucis*, that it is equally easy and certain in the living body. Here, I ought to mention, that it was from Mr. Hilliard I first learnt that the abrupt bending of the wire is not an impediment to its removal. He also suggested to me the use of two needles in the way just described, by which the wire is applied much more expeditiously and exactly than by using a single needle. The only conceivable obstacle to its withdrawal would be a kink or hitch in the wire, which might cause much inconvenience. Hence the stress I have laid on the necessity of carefully avoiding this mischance in threading and fixing the wire. Its removal, no doubt, requires to be cautiously conducted. Thus, clip the wire close to the edge of the piece of cork, and straighten out the curve it has necessarily formed at its exit from the skin. Remove the cork, and apply instead the tip of one finger, with which press firmly upon the flap, making traction, gently and gradually, upon the other end of the wire. In this way it comes out with great facility; but if this were roughly and harshly done, it might break up the adhesion which we suppose has taken place between the surfaces of the flaps, and it is quite possible that a kink in the wire might lacerate the artery in passing over it.

But it is certain that none of these evils need happen with ordinary care and tact.

As to the period of withdrawal, further observations are desirable; but it has been shown, in numerous cases of acupressure, that for small vessels a few hours of compression is sufficient; and for the largest arteries a much less time than might, *a priori*, have been supposed. However, as a general rule, it is not desirable to disturb a wound in any way for from twenty-four to forty-eight hours, at the end of which time all wires commanding the secondary branches may be safely removed, and probably also from the large arteries; but, as a matter of prudence, one would at present prefer to keep a check upon such an one as the femoral for three or four days at least. Better it should remain needlessly long than be prematurely removed, for, as has been said repeatedly before, the presence of the wire is almost innocuous.

Hitherto I have spoken of this method of securing arteries only in reference to amputation of limbs. It is equally applicable to many other operations. Thus, supposing the testicle to be excised, how easily and nicely the vessels of the cord may be compressed by a wire, safely removable in a few hours. In a case of this kind, operated on a year ago, two ligatures were

applied. One of these did not come away for nineteen days, during which time, of course, many attempts had been made to withdraw it, amid the grimaces and exclamations of the patient. Moreover, most of the wound healed by first intention, and I am firmly of opinion that but for the ligature there would have been no suppuration.

This method would also be particularly suitable in a case of popliteal aneurism. I would ask special attention to this, for in no case are its advantages more obvious and decided. Surely such a wound as that made during the operation, a single clean incision on healthy tissue, might reasonably be expected to heal at once, were it not for the foreign body, the ligature or seton, which keeps it open. Moreover, the ligature remains some eight or ten days, long after it has ceased to be necessary or useful; and, above all things in the way of objection, *it sets up ulceration*, by which it has *to cut its way through the vessel* before it can be detached, whereby the blood channel is opened, and hemorrhage may and sometimes does result.

Suppose such a case treated by the wire compress. The wire would be passed under the artery by means of a tubular aneurism-needle made for the purpose, then brought through the integument at a convenient situation, by threading each end upon a common needle, and twisted upon a cork in the usual way. And now, mark the contrast. I have shown that in amputation of the thigh, the severed femoral is securely closed in three or four days by the action of metallic pressure, and there seems to be no reason why the same thing should not happen here; from which it follows that the wire might be safely removed in four days. Whilst there, it would be innocuous, not exciting suppuration; and in the end the coats of the artery would remain intact, and *bleeding would be impossible.*

Surely these are great and manifest advantages; as yet theoretical, I grant, but nevertheless self-evident, and based on sound reasoning and very exact analogy.

It will probably be found that the pedicle in ovariotomy may be conveniently dealt with by this method, the arteries being secured individually, and the entire stump also fixed to the abdominal wall by another wire. This idea has been already promulgated by my friend Mr. Spencer Wells.

To some wounds the wire compress is inapplicable. Thus, in the removal of a breast, it is usual to have bleeding from the twigs of the intercostal vessels which pass upwards through the muscles. Upon these the wire could not be applied; and the same difficulty might arise in the removal of any deep-seated tumour.

In these cases the short needles of Dr. Simpson have been found to act well; but I have elsewhere given reasons why the

wire is preferable where it can be used. Neither should I expect to find it easy to apply the wire upon the vessels of a flat-faced stump made by the circular incision. But this is merely an additional reason, if such were needed, for preferring a flap operation.

It is scarcely necessary to allude to the idea, recently put forth as a novelty, of using *wire* as a *ligature*, by *tying it* upon the arteries. It is neither new nor good, for it is evident that *it*, like any other ligature, can only be cast off by ulceration, which process, as we have seen, the metallic substance does not readily excite, and therefore it would probably be more difficult to get rid of than even the old-fashioned thread. Nor, I suppose, will any stress be laid upon the now exploded doctrine, that for the safe closure of an artery it is necessary that its inner coats should be divided. The results of acupressure have sufficiently shown the non-necessity of this. It is certain that the needle passing over an artery can effect nothing of this kind, and yet, by *its* use, secure and firm obliteration *does* take place, and that readily and speedily; from which it is evident, that if such a necessity existed about the beginning of this century, when the doctrine was first invented by Jones, it is no longer needful at present. Now-a-days it is sufficient that the current of blood should be arrested for a few hours by simple pressure.

I take it for granted, that some who read this paper will, ere long, be making trial of this contrivance. I would warn such against disappointment which might arise, from anticipating too much, and also at the same time protect myself from suspicion of exaggeration and extravagance. Therefore, let it be borne in mind, that *entire union by adhesion* in large wounds is not to be expected as a frequent event, neither will pyæmia and secondary hemorrhage be utterly abolished. But it cannot be denied, that ligatures are an impediment to healing, and that the absence of these impediments increases the probabilities of union; that the presence of a ligature in a *suppurating* wound increases the suppuration and prolongs its duration; and that the longer the period of purulent formation, the longer the danger of pyæmia exists, and the greater are the chances of the occurrence of this bane of surgery.

And if my statements should appear in some degree sanguine and enthusiastic, this arises solely from the implicit confidence I feel in the intrinsic merits of the little device just propounded. I have met with no difficulties or drawbacks that have not been frankly narrated, nor am I acquainted with any dangers that can be alleged against it; and, for myself, I should as soon think of stuffing a wound with charpie, or of searing a stump

with a red-hot iron, as of using a ligature where the wire could be applied.

Allow me, then, in conclusion, to give in few words, a tabular resumé of the points of contrast between the ligature and the wire compress.

The main distinctions are these:—

The ligature consists of *organic* material. It absorbs fluids of the wound—is itself liable to decomposition, and is very obnoxious to the living structures.	The wire being a *metallic* substance is non-absorbent—non-irritant, and almost innocuous to the tissues.
The ligature is fixed to, and fastened upon, the artery itself. It lacerates its structure, and puckers up and corrugates the tube.	The wire is not attached to the vessel, nor indeed to anything else; it does not tear the coats of the artery, but closes it in a smooth and even manner, by gently pressing together its internal surfaces.

Which of these, it may be asked, is the more favourable condition for healthy adhesive repair, *quoad* the artery.

The ligature excites, promotes, and prolongs suppuration.	The wire has no tendency of this kind, hence will there be less danger of pyæmia, and a greater chance of adhesion of the wound.
The ligature necessarily causes ulceration of the artery, and death of the part on which it is tied.	The wire has no such effect, hence, secondary hemorrhage will be less likely to occur.
The ligature remains for an indefinite time, and on the other hand, from a brittle or sloughing artery, it may be cast off too soon.	The wire is removable at will, and at the same time it cannot be spontaneously dislodged. Another safeguard against bleeding.
The ligatures project between the edges of the integument, presenting a mechanical impediment to their union.	The wire does not interfere with the edges of the wound, nor with the adjustment of flaps; hence union by adhesion will be more probable.
In the application of the ligature, the vital connexions of the artery are damaged, and its *vasa vasorum* broken up.	The wire is applied without any disturbance of the artery itself, which therefore, is probably earlier and more securely closed.

The removal of the ligature is uncertain; ineffectual attempts are common, very painful, and injurious to reparative action; and the knot especially, in its withdrawal, tears through granulations and breaks up adhesion.

The wire is withdrawn at once, and certainly without any futile, painful, premature tractions, or disturbance of parts, or any interruption to the healing process.

Of these advantages, some appertain equally to the needles, long or short, but the wire alone combines them all. It is, at the same time, free from the chief defects of acupressure, and in most cases will be found by far the most simple, manageable, effectual, and satisfactory method of applying *the principle of metallic compression*, any form of which is preferable to a ligature.

P.S.—Since the above paper was written, I have used the wire compress in two other cases, viz., excision of a testicle, and excision of a breast.

The testicle was very large from sero-cystic disease, the scrotum being also greatly distended by hydrocele, so that the wound was fully eight inches long. Two arteries in the cord—which was healthy—were secured by two separate wires, fixed, one on each side of the incision. They were not disturbed till the fourth day, because the pieces of cork seem to assist in keeping the edges of the wound in apposition. The case did well; the suppuration was slight, and the healing rapid.

The breast was affected with cancer. A cut had been made into it a few weeks before I saw it, in search of pus. From this wound a fungous growth was sprouting exuberantly. The incision for its removal was six inches long. Three arteries bled; none of these were deep-seated, and they were readily secured by the wires. These were all removed in twenty-four hours. For some days there was a considerable oozing of the liquefied fat; but the suppuration was very trivial, and in ten days the cicatrix was firm and the cure complete.—*Edinburgh Medical Journal, Sept.* 1864, *p.* 207.

39.—CASES IN WHICH VESSELS WERE SECURED BY WIRE LIGATURE, AND IN WHICH BOTH ENDS WERE CUT SHORT AND LEFT IN THE WOUND.

Under the care of BARNARD HOLT, Esq., at the Westminster Hospital.

A. T., a moderately-robust woman, aged forty, was sent into the hospital by Mr. Kelly, of Fetter-lane, suffering from carcinoma of the mamma. The patient stated that she noticed a small swelling about eight months since, which at first grew

slowly, but two months before her admission it had so rapidly increased as to be as large as a hen's egg. She complained of the ordinary lancinating pain, both in the tumour and also extending down the arm, which was sufficiently severe to materially interfere with her night's rest. The tumour was movable, unconnected with the deep structures, but adherent to the skin. The nipple was retracted. The mamma was excised by Mr. Holt a few days after her admission. Five arteries were secured with the wire ligature, and the ends being cut short the surfaces were then approximated, and retained in apposition by suture and a light bandage. When the bandage was removed (the second day after the operation) almost the whole of the wound was found united by the first intention; a small portion near the centre, about half an inch, had not united, and gave exit to a trifling quantity of pus. On the fourth day all the sutures were removed, and the patient was able to be up. No inconvenience was experienced by the retention of the wire, and the woman speedily left the hospital with the wound sound. Five months after the operation, Mr. Holt received a report that no wire had escaped, and that not the slightest inconvenience had resulted from its retention.

C. H., was admitted under the care of Mr. Holt, suffering from carcinoma of the breast. Her history and appearance were very similar to the case already recorded; and Mr. Holt, on the fourth day from her entry into the hospital removed the whole breast. Six vessels were ligatured with wire, and the ends of the ligatures cut as short as possible. The greater portion of the wound healed by the first intention, and the patient left the hospital in a much shorter time than usual. The detention of the wire gave not the slightest inconvenience either at the time or subsequently.

The third case occurred in Mr. Holt's private practice. He was called in consultation with Dr. George Pearce, of Westminster, to see a lady who had suffered for a long period from carcinoma of the breast without having received any advice for it. At last, however, the tumour became so exceedingly painful as to necessitate her consulting Dr. Pearce. Upon examination, the diseased mass was found not only to occupy the whole gland, but to have caused the axillary glands to become enlarged and diseased. The growth was adherent to the integuments, which had ulcerated to some extent, and the tumour could not be freely moved upon the chest. The whole mass, as well as three enlarged axillary glands, were removed. The bleeding was smart, and seven vessels required to be ligatured. The silver ligature was employed, and the ends of the ligatures were cut short. So much of the integument was diseased that it was found impracticable to bring the edges together; the bleeding

points, with one exception, were covered. As in the former cases, no inconvenience resulted from detaining the wire; and Dr. Pearce informed Mr. Holt some months afterwards that the patient was convalescent.

J. B., aged thirty-three, of tolerably good constitution, was admitted on the 6th of February last. Twenty years ago his left ankle gradually enlarged, with considerable pain and inflammation; and he shortly afterwards became an in-patient at Guy's Hospital, under the care of Mr. Bransby Cooper, who made a free incision, and let out a considerable quantity of pus. Diseased bone was detected, and Mr. Cooper wished to amputate the limb; but the patient would not consent, and shortly left the hospital with the wound healed. Until with eight months of the present time he had had a useful foot; and though somewhat stiff at the ankle-joint, he yet suffered no pain. Last May, however, the ankle-joint began to swell again; and when he was admitted, Mr. Holt made a free incision, and let out a considerable quantity of pus. A few days afterwards he detected diseased bone, and, on account of the unhealthy condition of the integuments, he amputated the leg above the ankle-joint on the 23rd February. The ankle-joint and the articulations of the tarsus were destroyed, the bones in some places were quite bare, and the synovial membrane was greatly thickened with deposits of cretaceous matter. The internal lateral ligament was almost entirely destroyed; whilst the external lateral ligament was healthy. The wound healed rapidly, and none of the six wire ligatures which were used came away.

D. P., aged fifty-two, and looking emaciated and haggard, was admitted Feb. 2nd. Eighteen months previously he met with an injury to his left elbow, which caused considerable inflammation and ended in abscess. At the time of his admission the joint was quite anchylosed, with several sinuses leading down to bare bone. The integuments over the joint were greatly indurated and unhealthy-looking, and the muscles of the limb were very much wasted. Mr. Holt thought amputation would in this case be preferable to excision, and accordingly amputated above the elbow. Five wire ligatures were used to tie the vessels; the ends were cut short, and the wound healed firmly. Nearly two months have elapsed since the operation, and no inconvenience has been caused by the retention of the wire ligatures.

In some clinical remarks Mr. Holt observed that, although in no instance were the incisions followed by immediate union through their entire extent, yet a much greater portion had healed by the first intention, and much less suppuration followed, than where the vessels were secured in the ordinary manner; and it appeared very probable that in cases of ampu-

tation of the leg and arm, the non-irritation of the wound had prevented any unfavourable result, the hospital being at the time of the performance of the operations in an especially unhealthy state from the presence of hospital phagedena, which had attacked many of the cases of ulcer and wounds. There was nothing new in the principle of cutting short the ends of the ligature and allowing them to be retained in the stump; for it would seem to have been simultaneously adopted, about 1798, by an American naval surgeon and Dr. Maxwell of Dumfries. Hennen and other military surgeons extensively followed the practice, and it was the last named surgeon who first suggested the use of hair ligatures. So far as the present cases went, they tended to show that as great security was afforded against secondary hemorrhage by the use of the wire as of the thread; and certainly there was less risk of abundant suppuration and of the occurrence of pyæmia than where the hempen ligature was employed. The surfaces of the wound were likewise kept in undisturbed approximation; the patient was saved the pain of removing the ligatures—a pain occasionally very severe; the suppuration was infinitely less; and in favourable cases there were great probabilities that immediate union might be secured through the entirety of the wound, the retention of the wire ligature not in the least degree militating against such a result, or giving the slightest inconvenience either immediate or remote. As a further proof of this, Mr. Holt referred to the continued good results which followed the subcutaneous tying of the veins in two cases of varicocele already reported in this journal. Mr. Holt also alluded to the probable advantage that might result in cases of aneurism where pressure had failed, but where it was desirable that a modified current of blood should be permitted to pass through the artery, by partially compressing the main artery by tying the wire loosely and cutting both ends short; the experiment seemed to be worth a trial.—*Lancet, July* 23, 1864, *p.* 91.

40.—ON INJURIES OF THE HEAD.

By Dr. JOHN ASHHURST, Jr., Executive Officer to the Cuyler United States Army General Hospital.

There are certain remedies and modes of treatment in injuries of the head, and especially in fractures of the skull, which have become venerable by age, and which are hence liable to be adopted as correct, without its being considered if they are really commended by science and experience. I propose very briefly to consider the most prominent of these, and to state, as modestly as possible, my own convictions concerning them.

And first, as to trephining, or trepanning: that the operation has often been successful (that is to say that patients have recovered after it) of course cannot be denied; but it is doubtful if they might not have recovered without it. Desault bored a great many men's heads, and they all died; he then gave up boring men's heads, and they all, or nearly all, got well. To elevate a depressed piece of bone is desirable, but so many cases recover where the bone remains depressed, and so many die where it is elevated by trephining, that the remedy has proved, in such cases, hardly an assistance to nature. The products of inflammation have been occasionally evacuated by trephining, but there have been so many unsuccessful and fatal cases, on the other side, that I think very few surgeons now would resort to the operation in this contingency. Of thirty-five cases in which the trephine had been used in our army, from September, 1862, to March 31st, 1863, twenty-eight died, two remained undecided, and but five have recovered; and it is not impossible that some of these might have recovered equally without operation. I do not say that I would never use the trephine; but I do say, unhesitatingly, that I have never seen a case where I think its use would have been justifiable. I would, of course, remove all loose fragments, and if I could elevate a depressed portion of bone without too much interference, I would do so, but beyond this I should be disposed to leave the case to nature.

Bleeding is another remedy which has been very largely employed in injuries of the head, and is still recommended even by those who forego its use in other cases; and yet I think it is hardly indicated either by reason or experience. A clot on the brain will not be relieved by bleeding, nor will bleeding prevent a clot's formation. The results of bleeding in inflammations of other organs have not been so favourable as to lead us to resort to it from analogy in inflammation of the brain; and bleeding as a prophylactic appears to me as irrational as it is cruel. I believe free stimulation is more often required in fracture of the skull than the use of the lancet. I have, indeed, recorded in this paper a case of fractured frontal sinus, which recovered after bleeding; but I should be loth to infer that the bleeding was the cause of that recovery.

Calomel and tartar emetic have been much used in injuries of the head, and Desault's experience with large doses of the latter was extremely favourable to its employment. But I imagine there are but few surgeons now who would be inclined to push it to the same extent that he did. If inflammation occur in these cases, I should be disposed to regard calomel in small doses as a remedy which might possibly be of use. But I

cannot see the propriety of giving it in large amounts, as has been done, to every man that may have a broken skull.

The course then, which I would pursue in a case of fractured skull or contused brain, would be as follows: If the case were a compound fracture, I would remove any fragments that were detached, and if a portion of bone could be elevated without dangerous interference, would restore it to its proper position. I would place the patient in bed, in a darkened room, with his head shaved, and cold locally applied. I am convinced that the profession does not appreciate the great advantages to be derived from cold, and especially dry cold, in surgical cases. I consider it second to no remedy in the treatment of injuries of the brain. Taking the view that I do, that the danger in these cases is from inflammation, I would endeavour to obviate any causes that might excite it, and to keep the system in a condition as well prepared to meet it as possible. As these accidents generally occur to men in robust health, and as there has generally been but little hemorrhage, the diet may, for the first few days, be very limited. There has been no drain upon the system as in other surgical injuries, and the risk of exhaustion and fatal debility is, therefore, less. I should not, however, hesitate, if it was indicated by the symptoms, to resort to free stimulation from the outset; and it will generally be necessary to have recourse to it in the progress of the case. I should use opium, in some form, freely in almost every case. I cannot understand the fear of opium in injuries or inflammation of the brain. The same principles which induce its administration in peritonitis make it suitable in these cases. I would therefore "put the brain in splints," if the expression may be allowed, by the use of opium.

But the most important thing is to carefully watch the case from day to day, and to endeavour, in the words of Dr. Watson, to "obviate the tendency to death." If coma be threatened, a few cups or a small blister to the back of the neck may be of service. Derivation from the bowels by means of purgatives may be sometimes particularly indicated. An attack of facial erysipelas (a mark of constitutional depression) will call for the use of wine or brandy; and in short every case must be studied for itself, taking into view its natural history, so to speak, and its pathology, with all the lights that can be derived from reason, analogy, and experience.

In conclusion, I would say a few words as to two symptoms which are supposed to characterize fractures at the base of the skull. These are orbital ecchymosis, and bloody or watery discharges from the ear or nostril. Now neither of these is pathognomonic, and though, of course, their concurrence would make the diagnosis very probable, they might both be present,

and yet no fracture exist. Orbital ecchymosis shows merely that a vessel is ruptured within the orbit; and this may occur in connection with a fracture of the malar or superior maxillary, as in a case published by Mr. Holmes, and referred to by Mr. Hewett in his admirable monograph on injuries of the head, or even without any fracture at all, as in the case of McAllister, reported in the *Proceedings of the Pathological Society of Philadelphia*, (*Am. Journ. of Med. Sci.* for July, 1862, *p.* 112.) Similarly a bloody or watery discharge may proceed from the cavity of the tympanum alone, without any fracture of the skull, as in cases reported respectively by Mr. Gray and Mr. Hewett. —*American Journal of Medical Sciences, July* 1864, *p.* 25.

41.—THE TRAVELS OF A BULLET.

By J. Millikin, Esq., Borough, London.

About thirty years ago, one of the sons of the late Dr. Cheyne, of Dublin, whilst visiting an estate of his father's in the interior of Ireland, was shot; but whether by design or accident I cannot remember. The bullet entered either the cavity of the chest or abdomen. The principal surgeons of the metropolis hurried down to render aid, but the ball was not extracted. At length the patient was brought up to Dublin, and both Sir P. Crampton and Mr. Cusack used their utmost efforts to discover and remove it without effect. After some time he recovered, and for several years went about as well as ever he was, when suddenly he was attacked with symptoms of stone. which was found, on sounding, to be of large size. I cannot say which of the above gentlemen operated, but the stone was removed by one of them, the nucleus of which proved to be a leaden bullet. And Mr. Cheyne may, for all that I know, be in the full enjoyment at the present moment of sound health and spirits.—*Lancet, Aug.* 20, 1864, *p.* 221.

42.—ON SEPARATION OF THE EPIPHYSES OF LONG BONES.

By Jonathan Hutchinson, Esq.

I have taken frequent opportunities of directing attention to the subject of separation of the epiphyses of long bones. It is a kind of accident different on the one hand from a true fracture, and on the other, from a dislocation. It is a form of injury too of very great importance. In the first place, it is of frequent occurrence (in spite of the fact, that it is scarcely mentioned in any of our systematic works). Secondly, it is difficult both in diagnosis and treatment; and lastly it is very apt to be followed by serious consequences. The peculiar dangers attach-

ing to it are, 1st, that periostitis may occur; and 2ndly, that the union when complete, may be attended with much impairment to the adjacent joint. To these risks I may add a third, which is, however, of minor importance: viz., that the injured bone may not grow. I believe it is chiefly in the cases in which periostitis follows the injury, that arrest of growth is the consequence. The cartilage placed between the epiphysis and the shaft is damaged in the inflammation, and its further process of growth and ossification is arrested. Of course you are all well aware that bones grow in length by the ossification of their epiphysal ends, not by any change in the bony shaft itself.

Periostitis is more frequent after these injuries than after fractures on account of the density, strength, and vascularity of the periosteum at the ends of bones. Muscles, ligaments, &c., are here inserted into it, and give to it a greatly increased thickness. This thickness and strength leads to the consequence, that in injuries involving the displacement of one part of the bone with much violence, the periosteum instead of being torn across is extensively stripped up.—*Clinical Lectures and Reports of London Hospital*, 1864, *p.* 88.

ALIMENTARY CANAL.

43.—ON THE OPERATION FOR HARE-LIP.

By WILLIAM FERGUSSON, Esq., F.R.S., Surgeon Extraordinary to H. M. the Queen.

Regarding the operation itself, my personal experience extends to between 300 and 400 cases. Prior to 1850 I had kept notes of only a few of such cases. At that date I was asked to operate on one which had baffled the best efforts of Mr. Liston and Mr. Lonsdale, and at the same time to use a spring or truss, to push the sides of the lips forwards—an invention of Mr. Hainsby, the father of the child. The accompanying woodcut gives an illustration of the instrument when in use. The operation proved successful, and I have good reason to be satisfied that the instrument had been efficacious. Since that time I have used a similar appliance in upwards of 250 instances, and consider it far superior to any other means—by straps or otherwise—for drawing the parts together. Particular notes were taken of these cases, some of which are interesting. 146 were males; 153 were on the left side; 53 were double fissure; and no less than 208 were associated with cleft palate. 169 of these have been operated on at King's College Hospital.

As to the results, three of these patients have died, seemingly

from the proceeding; not from bleeding or shock, but from some child's ailment supervening, such as thrush or diarrhœa. I have never seen a single instance of convulsions afterwards, at

any period of life, and I have operated at all ages between a few days old up to thirty-six years. Taking all things into consideration, I am of opinion that the earlier the operation is performed the better; assuredly before teething. I decidedly prefer about the end of the first month. In a simple case and healthy infant, it may be done any time earlier to within a few hours of birth. If the child is weakly and the gap large, particularly if complicated with split palate, I strongly advise delay for some months until additional strength is acquired, and also that the parts may be pushed closer in apposition by the use of the truss referred to. I have sometimes made babies wear this for many weeks or months before, and have always noticed its great value.

In double fissure I have generally operated on both sides at the same time. Occasionally, however, I have taken first one, and then the other; selecting the simplest first, and performing the second operation a few weeks—possibly months—after. In some of these double clefts the middle portion of the lip has been so scrimp that I have used it for the columna, particularly in instances where the nose has been flat. When it has seemed needful or best to take away the mesial projection, the closure of the gaps has always been a very easy matter, but when this part has been prominent, there has often been cause for much anxiety as to the result. The tension of the lip over this part has threatened to be too much for the recent adhesions. In

only one instance has there been total failure of union, and in that I afterwards repeated the operation with success. In several cases there has been serious threatening of non-union by the gap opening an hour or two, or a day or two, after the stitches have been removed. In such instances I have scraped the surface, introduced needles again, and put all up as at first, and thus made the process appear only as one. This method I have rarely seen fail. On one occasion a child was running about eight days after a very successful operation for a single fissure. It unfortunately fell on its face, and at once split the union open. Although eight miles off, it was brought to me within a couple of hours, when I introduced fresh needles, and with the ordinary care the result was as perfect as could be desired.

After trying a variety of lines of incisions, and seemingly cunning devices for adaptation of opposite surfaces, so as to give the best possible appearance to the lip, I confess that with few exceptions, the old-fashioned straight line, from the root of the cleft to the free margin of the lip, appears to me to be the best. If a notch or irregularity is left in the lip, it arises generally, I believe, from too little having been cut away from the margins of the fissure.

To make sure of a good and easy approximation of surfaces, I strongly recommend a free separation of each side of the fissure from the alveoli. Some have said that the frænum on the mesial side in a single fissure should not on any account be cut. It is often unusually large in such cases, and I say from my experience, that I see no reason why it should not be cut as readily and freely as any other part of the mucous junction of the lip to the jaw.

To take a refined view of a perfect operation, I have myself found the most difficult part to be that of bringing the opposite sides so accurately together that the margin between the mucous membrane and skin should meet on a proper level.

The position of patient and surgeon during the operation deserves some notice. I have often seen the operator sit or stand in front of his patient, and, in general, before the work has been finished, his face and dress have been spluttered over with blood, saliva, and mucus. A far better plan is to be behind, or at the side, so that all the annoyance referred to may be avoided. In infancy the head should rest between the surgeon's knees, who should sit; and in the adult the operator may stand behind a chair on which his patient sits, or at the head or side of a table on which his patient is laid. In either of these positions he may escape the unseemly damage to personal appearance to which I refer.

A few of my infantile patients have taken the breast after

the operation, but most have been fed by hand, and some modern devices with caoutchouc and bottles have been of great service.

Many of these observations are of no novel character, but possibly the experience which I have had may render them of additional value. It may, perhaps, be thought, that in bringing this minor subject in surgery before you in these lectures, I deal but lightly with my position. You may have noticed that I look upon some of the so-called minor subjects in surgery as being far more important than some imagine; and in extenuation of my present course, I may refer to the circumstance that the illustrious Roux, in writing the experience of forty years of surgical practice, did not disdain this topic, but actually made it the subject of one of his famous letters to "Cher Lawrence," his equally distinguished and experienced contemporary.—*Lancet, June* 25, 1864, *p.* 721.

44.—ON THE OPERATION FOR CLEFT PALATE.

By William Fergusson, Esq., F.R.S., Surgeon Extraordinary to H.M. the Queen.

The early history of the operation for cleft palate sounds like a romance. In 1819 a medical student applied to Roux, then one of the surgical luminaries in Paris, with a defect of this kind. Roux pared the edges of the cleft, and brought them together with stitches. Union followed; the palate became like a normal one, and when the youth appeared amongst his former friends, the change in his voice was such that he could scarcely be recognised as the same person.

I doubt if this case, although fairly made public by Dr. Stephenson in his inaugural dissertation on Velo-synthesis, when taking his degree of M.D. in the University of Edinburgh in 1820, produced the full effect on the surgical mind that it should, even when further elucidated in the famous essay by Roux, published in 1825. Possibly the rarity of the condition and the difficulties of the operation led to apathy, and down to the period of Roux's death no one seems to have had any experience on the subject at all equivalent to his. Like others taking their early surgical lessons in the third decade of the present century, I was attracted by the romance referred to. But I had seen little to absorb special attention. Whilst busy in dissecting-room work, a subject with cleft palate came under notice. At that time, as even now I suppose, few students took the pains to dissect the palate; but it was my fortune to have this one to luxuriate upon. I made a careful dissection of all the muscular apparatus, and came to the conclusion

that I had rarely seen it so highly developed, although the palate and throat were small, being those an of aged female. The whole matter fell aside for years. I had performed the operation on the living body, and had heard of others doing so, without success. The subject in a manner slept on this side of the Atlantic, with the exception of the doings of Roux himself; but about 1840 all Europe, in a surgical sense, rang with the brilliancy of Stromeyer's operations for club-foot and Dieffenbach's for strabismus. Tenotomy and myotomy became the fashionable surgical mania, and I bethought me of my former dissection of the cleft palate. For anything that I knew, it was original. I compared it with the normal condition anatomically and physiologically, and then reflected on what I had seen and heard of surgery as applied to this condition by Roux and others. My zeal was further stimulated by a paper by Dr. Mason Warren, of Boston, which told of a larger proportionate success by Dr. Mütter, of Philadelphia, and himself than to my knowledge had yet been attained by any others, not even excepting Roux. On additional reflection, I fancied that I had fallen upon new views in anotomy, physiology, and surgery, and my conclusions were embodied in a paper which was submitted to the Medical and Chirurgical Society of London in December, 1844. That paper was honoured with a place in the volume of "Transactions" of the Society for 1845. Its main features went to show how the cleft palate was closed in deglutition by the action of the superior constrictor of the pharynx; how the palato-pharyngei in cleft palate acted differently in this state than in the normal palate, and, instead of closing the opening between the pharynx and the nares, in reality tended to draw the parts asunder—an act which was overbalanced by the vigour of the upper constrictors of the pharynx. Above all, looking to the surgical aspect of the malformation, I gave it as my opinion that the action of the levatores palati probably exercised such an influence on the lateral portions of the palate, after the operation of Roux, as to mar its good intentions. I showed, in as far as one could by reference to the dead and living parts, how the levator muscle on each side had such free and uncontrolled action that, whenever excited, it drew the margin of the cleft outwards and upwards, and so tugged upon the stitches put in by the surgeon that ulceration in their sites and separation of the junction was a most probable result—that, indeed, which had caused the failure of Roux's operation in so many instances.

The inferences which I drew were, that if the palato-glossus, palato-pharyngeus, and levator palati on each side were divided, the soft parts would thereafter, for a time, be so relaxed that in all probability the mesial line of adaptation would be so little

disturbed that union would take place. The tensor palati I considered would have little disturbing influence, nor did I put much importance on that of the palato-glossus. My impression was, that the action of the levator palati and palato-pharyngeus, particularly that part in the posterior pillar of the fauces, was likely to prove detrimental; and, in accordance with the somewhat novel and already popular practice of myotomy and tenotomy in other directions, I recommended division of these muscles as an adjunct to the ordinary operation for cleft palate.

By modern custom, the department of anatomy associated with the professorship of surgery in this college has been held of comparatively little account, although both my predecessors have displayed remarkable acquirements in this direction, which they have turned to great account in the field of surgery. As professor of human anatomy, I hope that I may not be out of order in claiming to be the first who solved the problem of how the cleft in the soft palate is closed during deglutition. The drawing influence of muscle has been most recognised; the pushing has been less taken into account, although it is very considerable. Swallowing, the vermicular action of the intestines, and defecation, are notable examples of this force, just as palpable in the estimation of the anatomist as the drawing of the biceps in flexing the arm. Anatomy without physiology would be in a manner senseless, but when joined together they give life and and soul to surgery. The influence of the constrictor muscles of the pharynx in the process of deglutition was well known to physiologists; but how, during that process, the gap of the cleft palate was closed in vacant space was an enigma, until I had the good fortune to show that the parts are pushed together by the action of the superior constrictor particularly, so that the gap between the pharynx and the nostril is as completely closed during deglutition as if the velum were entire. Then, for the surgical aspect of the investigation, I showed that by temporarily taking off the influence of such muscles as in common action tended to draw the two portions of the soft palate aside, there was a probability of such entire rest that union in the central line was most likely to take place—certainly, at any rate, more likely than with these muscles in full vigour, irritated, too, as they might be by the wounds, by inflammation, and by the presence of stitches. The almost intolerable distress, the depressing influence, the actual danger, associated with the injunction against swallowing laid down by Roux and others, made the early operations of this kind examples of human endurance which few could follow out to the full extent. Such injunctions had been occasionally disregarded, and Sir Philip Crampton gave some notable examples of this kind. Since I showed, anatomically and physiologically, that during degluti-

tion the parts are actually pushed together, that process is no longer forbidden; and now a fair share of suitable nourishment is freely administered—a matter of great consequence as regards successful issue.

With a single exception, which shall be nameless on such an occasion as this, I am not aware that any anatomist or surgeon of repute has controverted my views as expressed in the paper referred to. Nor need I do more than advert to the amiable and flattering device of a continental admirer bringing them all out anew, a few years after, as if they were his own. I have heard of nothing yet to impugn the anatomical explanation which I first gave of how various hap-hazard incisions might or might not facilitate the approximation and adhesion of the margins of the cleft in the soft palate. The knife for dividing the levator palati was my own device, and it was proposed at the same time, and soon subsequently applied, for the purpose of separating the soft palate from the hard in cases where there seemed a probability of closing a cleft in the hard palate, as well as the soft.

Those who have devoted attention to cleft palate during the last twenty years must have been surprised at a recent dispute as to priority in separating the soft from the hard palate with a view to close the cleft in the hard. Dr. Mason Warren described this process in 1843; and it was referred to in my original paper. I myself performed it in January, 1845, and have since repeated it on all fitting occasions. The late Mr. Avery devoted special attention to this portion of the palate; and after his death the subject was further ably developed by Mr. Pollock in a paper published in the Medico-Chirurgical "Transactions" for 1856. The first idea that I had of this portion of the operation for cleft palate was obtained from Dr. Mason Warren. I deem it but fair to the reputation of that distinguished surgeon to state that I know of no originality before his, and that I look upon all modern claims to such originality as arising either from ignorance or a desire to rob the fair reputation of a name which, in son as in father, will stand for generations among the brightest in surgery.

Although working at the subject of cleft palate since the date of my first paper, I cannot pretend to add much that is novel to the views which were then expressed. I have little to add, little to detract, from the anatomy and physiology which I ventured to submit as original. I am still as much convinced that the tensor palati has little or no influence on the soft palate—certainly that it has none to counteract the closing of the cleft. The palato-glossus I am of opinion has no practical influence; and excepting in rare instances, I am convinced from experience that there is no necessity to interfere with the

palato-pharyngeus in the posterior pillar. I am equally convinced of the value of dividing the levator palati, for that is the muscle which, by drawing upwards and outwards, separates the edges so as to prevent union or break it up when the stitches are removed.

There is ample experience to show that union has taken place, despite muscular action to the contrary. The experience of Roux and others has proved that. But I know of no experience equal to my own to prove what I contend for—namely, that by taking off muscular action for a time union can be rendered more certain than by leaving the muscles untouched.

Since I entertained the views referred to, I have operated on 134 cases, and of these 129 have been successful. In two union failed entirely, and in three it was so partial and imperfect that I place them as unsuccessful. Forty-five of them have been performed in hospital practice. In a considerable number an aperture has been left in the hard palate, and much benefit has been derived in many such cases from the use of an obturator. Occasionally there is a round aperture left, with such scanty material that it cannot be closed by operation; but in such slits as these, if the roof be wedge-shaped, (not horizontal,) the soft parts may be separated from the hard, and brought down so as to approximate in the middle, and be held together by stitches until they unite.

I have never attempted the operation in infancy, and consider the circumstances most favourable at or above puberty; but I have frequently operated successfully at ages between ten and fifteen, where patients have been steady and courageous. I have never operated under chloroform, and whilst I do not deny the possibility of doing so, I am of opinion that, as a rule, it is absolutely requisite to have the patient conscious, so that he may facilitate the steps in a variety of ways.

This enumeration includes all kinds of cases, and refers chiefly to the cleft in the soft palate. In many instances of cleft in the hard palate it is utterly impossible to contend against nature; and even in the soft, the parts are occasionally so scanty that there is literally no material to work upon.

In as far as I know, the greatest success recorded before my own views were made public was that achieved by Mütter, of Philadelphia. In 1843 he had operated successfully in nineteen out of twenty-one cases; and J. Mason Warren, of Boston, had been successful in thirteen out of fourteen cases. These instances were of both hard and soft palate. What may have been their after-success I cannot say. It has been related of Roux, since his death, that he had operated on 120 cases, and that of these one in every three had failed. I attribute Roux's comparative want of success to the circumstance that the levator palati and back

part of the palato-pharyngeus were left untouched; and I consider that Warren's success may have resulted from the free incisions which he made through the palate outside the pillars of the fauces. My own success, if I may so call it, I attribute chiefly to the division of the levator palati, and next to the relaxation which the wound for that division involves. For mere relaxation, the incision of Dieffenbach is probably the most perfect. I know that it has been particularly successful in Mr. Skey's hands, and in Mr. Pollock's; but, with all deference, I am still disposed, from all I know of the subject, to prefer a free incision above the soft palate, whereby the levator palati may be divided to a certainty. In addition, I look upon this wound as of great service in this respect—the lymph effused upon it acts as a splint, whereby the palate is kept fixed as a board until union in the mesial line is complete.

As to attitudes in this operation, the patient may sit or lie, as may best suit convenience. Latterly, I have made most use of the recumbent. I find that the head can be kept best on the same line in this position; and as regards my own views on the anatomy and physiology of the parts concerned, I deem the subject of some importance. For instance, if the patient sits with the head slightly thrown backwards, the palato-pharyngei, when irritated, pull the soft palate downwards towards the epiglottis, so as to leave a space between the palate and the base of the cranium; but if the head be thrown far backwards the axis of action is altered, and these muscles draw the soft parts upwards, or, in other words, bring the soft palate towards the base of the cranium, and thus add to the difficulties of the surgeon by limiting the space above the soft palate where he has to work with the needles in introducing sutures. Here, as in hare-lip, the surgeon has generally stood before his patient, but I invariably select his right side in preference to all other places.

The grand practical object of this operation is to improve the voice and articulation. Defective deglutition from this malformation is what attracts the mother's or nurse's attention in early life. The cries of infancy are in nowise peculiar in tone; but when definite articulation commences, or rather should commence, the value of an entire palate is then appreciated. The air and sound, in passing outwards from the larynx, escape in part through the nostrils by the split in the palate. A nasal twang is the result, and articulation as in the normal state of the parts is impossible.

Immediately after the operation, the modification on the voice can be at once detected. It is customary to keep those operated on from speaking for eight or ten days. It is, however, a needless restriction as regards my operation. In reality, few care, under the circumstances, to speak at all; yet I do not

think that it would do harm. In the course of eight or ten days, when the fever or distress following the operation has gone, the tone of the voice is at once perceived to be changed for the better. Improved articulation, however, comes more slowly. Years, many years, are required for distinct articulation when the whole organs are to all appearance in perfection; and after the most successful operation for cleft palate, months and years are required to alter defective sounds. Voice and speech have to be modified anew. With some the changes came slowly and sluggishly; but with others they are so rapid and perfect that in a few years the original defect cannot be detected except by a practised ear.—*Lancet, June* 25, 1864, *p.* 722.

45.—ON HARD NODULATED TUMOUR OF THE TONGUE, APPARENTLY OF A CANCEROUS NATURE, WHICH DISAPPEARED UNDER USE OF THE GALIUM APERINUM.

By F. A. Bulley, Esq., Senior Surgeon to the Royal Berkshire Hospital, Reading.

Jane C., a married woman, aged sixty, residing at Ramsbury, in Wiltshire, was admitted into the Hospital April 5, 1864, on account of a hard, firm, somewhat circumscribed tumour of about the size of a boy's marble flattened, imbedded in the substance of the tongue, on the right side, about an inch from its apex, which had been gradually increasing in size since she first observed it, five weeks before, when it was about as large as a hemp-seed.

The upper surface was nodulated and uneven, and the swelling generally had the appearance and feel of a scirrhous formation in the organ. It had all along been extremely painful, so much so as entirely to prevent her sleeping at night; it was exquisitely tender to the touch when handled, and latterly she experienced a throbbing beating pain in it, which had induced her to think it was about to burst. There was no appearance of its having been caused by injury to the tongue through a decayed tooth. She had always been in the habit of living tolerably well, but had been suffering a good deal from general debility and langour for some time before the commencement of the swelling. Her countenance did not indicate any peculiar cachectic condition of the system, and there was no history of any hereditary cancerous taint in her family. The tumour had increased rather rapidly lately, and she was quite unable to masticate solid food on account of the pain it induced, which had added much to her original weakness.

She was ordered to have strong cold beef-tea frequently during

the day for diet, with a pint of porter daily, and to take the following medicine:—℞. Extract Galii aperini solidi, ʒij.; aquæ ad. ℔jss. M. ft. extract fluid. Of this extract a drachm and a half was given twice a day in a wineglassful of water. She was also ordered to use the above mixture as a warm lotion to the mouth several times during the day, keeping it in the mouth for some during each application.

A month after her admission she had completely recovered from the langour and debility under which she had previously been suffering; her face, instead of being pallid and sallow, had recovered a healthy and somewhat florid appearance, which was natural to her; the pain in the tumour had been gradually diminishing, and the tumour itself had become so much reduced in size as to be scarcely discernible to the touch, and as she was now able to take solid food without discomfort and with an appetite, she was, at the end of five weeks, discharged from the Hospital. A fortnight afterwards, having continued the remedies prescribed, she presented herself as an out-patient, when it was found that the tumour had entirely disappeared, and the tongue had recovered its natural structure and appearance.

The galium aperinum or cleavers has long been employed as a popular remedy in cancerous affections. Some years ago Dr. Wynn directed the attention of the Profession to the remarkable effects he had observed from its use in the treatment of some inveterate cutaneous affections which had come under his notice, and related several cases in the *Medical Times and Gazette*, which clearly showed that it was a remedy of considerable efficacy in such diseases, and more recently Dr. Ogle has published some interesting cases of epilepsy in which its employment had been followed by the most successful results. Like many other recent vegetable juices, it appears to have the power of correcting that peculiar dyscrasy of the blood which is found to prevail more or less in all cases of cancerous disease, whatever form it may assume, acting, I suppose in the same manner as the same kind of remedy seems to act in scurvy, by altering and improving the disintegrated and broken-down condition of the blood which always accompanies that disease, and restoring it to its natural healthy state.

I have for many years past been in the habit of employing this remedy in the treatment of cancerous affections of different kinds in my Hospital practice, and have not failed to observe that in some cases it has seemed to favour the production of healthy granulations on the ulcerated surface, whilst in others complete cicatrisation has ensued, and having performed operations for the extirpation of some tumours under these favourable circumstances, I have reason to believe that in these instances the disease has not returned, at least to my knowledge,

the patient having, of course, persevered in the use of the remedy for a considerable time after the operation, and although I do not consider that the remedy is capable in every case of effecting the resorption or removal of already existing cancerous deposits, I still believe, from what I have observed, that it has the power of suspending, or at least modifying, in some measure the cancerous action going on in the system, and thus placing the patient in a more favourable position for the performance of an operation for the removal of the local disease, either by the knife or the application of caustic. It appears to me to be quite contrary to reason to expect that an operation can be certainly, or even commonly successful, when performed while the cancerous action is proceeding unchecked in the system; and, as, according to our present knowledge on the subject, we are not in possession of any certain means of arresting its constitutional progress, it is not surprising that the disease should so frequently return, either in the part itself, in the neighbouring glands, or in some organ at a distance predisposed by some accidental irritation to become the seat of a cancerous deposit.

That Nature occasionally exercises a power of arresting or suspending the cancerous action in the system for a very long period, and even altogether, the records of Surgery fully prove, and it is not too much to hope that sooner or later some remedy may be discovered which may be capable of imitating the operations of Nature in this respect, and that thus a class of cases hitherto deemed to be almost beyond the resources of our art, may ultimately become amenable to some rational mode of constitutional treatment.—*Medical Times and Gazette, July* 30, 1864, *p.* 117.

46.—ON ENLARGED TONSILS, AND THEIR TREATMENT WITHOUT CUTTING.

By Dr. Morell Mackenzie, London.

The effete practice of applying caustics, alteratives, or absorbents, to the enlarged glands has been abandoned, and a positive effect has been accomplished by the aid of escharotics.

The "London Paste" which I employ (consisting of caustic soda and lime, moistened with a little alcohol) is made for me by Messrs. Bullock and Reynolds, of Hanover-street, Hanover-square. In preparing it, it is extremely important to employ absolute alcohol. If spirits of wine be used instead, the bulk of the paste is very much increased, and its causticity proportionably diminished. In addition to this, the water in the spirits of wine causes the paste to dry up very quickly, and makes it necessary to moisten it with fresh spirit every time it is employed. The mixture of caustic soda and lime has a

powerful affinity for carbonic acid, and if exposed, it rapidly absorbs it from the air, and loses its causticity. The paste should therefore be carefully kept in a stoppered bottle.

The compounds of the caustic alkalies and unslacked lime possess a power of destroying animal tissues, which is unequalled by any substance that can be safely applied at the back of the throat. I must remind those of you, however, who have been in the habit of employing Vienna Paste for surgical purposes, that whilst to make an issue it is necessary to keep the paste applied for ten or twenty minutes, neither it nor the London Paste *must remain in contact with the hypertrophied tonsil for more than five seconds.* The London Paste, as compared with the potash caustic, possesses, according to my observations, the following advantages:—

1. It tends to penetrate, rather than to spread circumferentially.
2. Its action, though less violent at the moment of application, continues for a much longer time.
3. It causes much less pain.

For applying the London Paste to the tonsil, and for preventing its accidental contact with parts not meant to be touched, I have had a little instrument contrived which answers its purpose well. You see that it somewhat resembles the guillotine of Mr. Luke, though instead of a steel ring with a sharp blade behind it, there is a kind of circular shallow spoon or receiver, into which the escharotic is put; the receiver is provided with a lid or cover, which, when the instrument is grasped in the hand, can be pushed forwards or backwards by the action of the index finger on a kind of trigger, or half-ring placed near the handle. The instrument is introduced closed, and when opposite the tonsil the lid is drawn back from the receiver, and the latter with its contained paste is pressed firmly against the hypertrophied gland for about five seconds. The lid is then pushed forwards over the receiver, and the instrument withdrawn. You see that the horizontal portion of the instrument is made of vulcanite—a substance which is not materially acted upon by London Paste. I call your attention also to the fact that the horizontal portion of the instrument is fixed into the handle by a screw in such a way that it can be reversed and thus used for either the right or left tonsil. In employing the instrument, I generally introduce it with my right or left hand, according as I wish to operate on the patient's left or right tonsil; whilst with my other hand I press the receiver firmly against the enlarged gland. I also frequently employ the free hand for pulling the trigger backwards or pushing it forwards, that is to say, for uncovering or covering the paste. For operating on children it will be found convenient to employ a

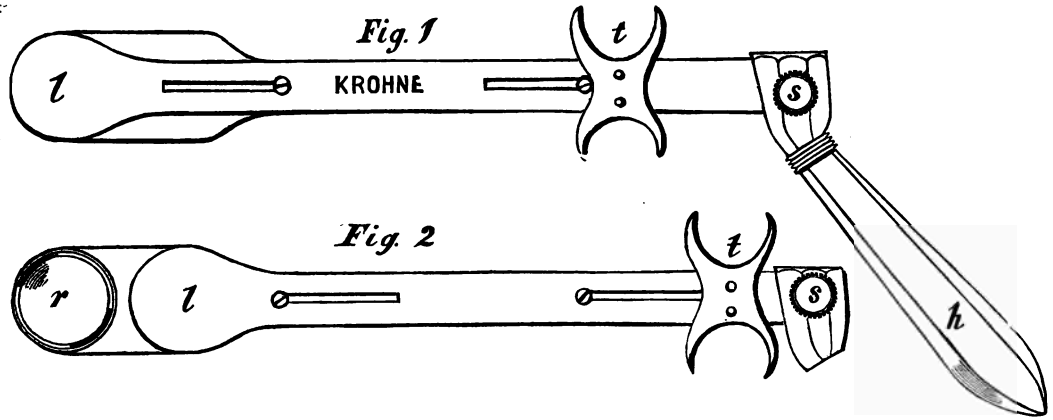


FIG. 1.—The instrument closed.

FIG. 2.—The instrument open.

(*t.*) Trigger by which the lid (*l*) is moved backwards and forwards.

(*r.*) Receiver into which the paste is put.

(*l.*) Lid, covering the receiver in Fig. 1, and drawn back in Fig. 2.

(*s.*) Screw, by which the horizontal portion of the instrument is fixed into the handle (*h*).

By this arrangement the instrument can be used for either tonsil.

smaller instrument. The same handle will of course do for two or three "receivers" of different shapes and sizes.

The instrument I have described is made by Mr. Krohne, of Whitechapel Road. It renders the employment of a strong semi-liquid escharotic easy and safe. Whilst recommending its employment to others, I must confess that it is only quite lately that I have made use of it myself. In more than twenty cases, I applied the paste with a small glass rod, or the wooden stick of a pen-holder. The following was my mode of procedure. The paste was first prepared. Care was exercised that it should be neither too thin nor too thick. If too thin, it is apt to run about and burn parts which should not be touched. On the other hand, if the paste is lumpy, there is the risk of fragments being swallowed. The glass rod was then dipped into the paste, great care being taken that the latter did not cover more than an inch of the rod. The patient was then placed in the position for laryngoscopy, and the fauces illuminated. In applying the paste it will be found very convenient to throw a strong light into the throat, with the large reflecting mirror of the laryngoscope. This is not absolutely necessary, but the difference between the dull day-light—partially obstructed by the operator's head and hands—and the brilliant illumination obtained by reflected light, is so great, that the mirror has only to be employed once to ensure its always being used afterwards. Still those who are not accustomed to use the laryngoscope may safely apply the paste without artificial illumination. In this case the operator must choose a fine day, and should sit close to the window, with his back to the light, whilst the patient sits facing him.

To continue: The patient being ready, he was directed to open his mouth widely, and whilst with one or two fingers of my left hand I pressed the tongue down firmly, with my right hand I applied the paste.

Directly the tonsil is touched with the paste a straining movement takes place in the throat and the tonsil is violently pushed out towards the median line. In this way, a large surface of the gland is exposed, and the paste can be applied with great facility. I stated just now that it was convenient to use a smaller instrument for operating on children than on adults. But it is so impossible to explain the object of an instrument to frightened children, that in destroying their tonsils, I generally apply the paste with the glass rod in the manner described. With reflected light at one's command, it is really astonishing how easily and how quickly operations at the back of the throat can be conducted, even on unwilling subjects. In employing the instrument which I have shown

you to-day, as the paste is concealed, it is not necessary to press down the tongue with the forefinger of the left hand.

In making use of either London or Vienna Paste, it is convenient to have a little vinegar at hand, so that if the back of the tongue or any other part has been accidentally touched, the caustic action can be at once arrested. To avail oneself of the neutralising property of vinegar however, it must be applied *immediately*. If its application is deferred, it only irritates the already inflamed part.

The application of the paste for a few seconds causes more or less pain. Some patients complain very much ; others do not seem to think much of it. The pain lasts from five to ten minutes. Afterwards there is a feeling of a sore throat, and some discomfort in swallowing. This generally continues for two or three days. On examining the tonsils shortly after the application of the paste the mucous membrane appears of a bright red colour ; streaks and patches of dark blackish blood, and white shreds of altered membrane, are seen at the back of the mouth. The next day, the tonsil is covered with a white eschar. The paste should be again applied after an interval of three or four days. The subsequent employment of the escharotic is generally attended with less pain than its first application. The largest tonsils can generally be reduced to a normal size in about a month. The paste should be applied about twice a week. The London Paste not only actually destroys a certain portion of tissue, but it greatly weakens the vitality of the subjacent tissues. The cohesion of the gland is impaired, and it becomes soft, and very friable. In proof of this, I may observe that after applying the paste once or twice, it is easy to push a glass rod into and even through the gland.

Dr. Fournié has employed the Vienna Paste for destroying the elongated uvula, and I have used both it and the London Paste for that purpose. The application of escharotics however to the uvula is difficult and unsatisfactory. The extreme mobility of the uvula makes it impossible to apply the paste firmly and steadily, and hence it often happens that the upper part of the uvula is partially destroyed, whilst lower down it is little affected. Besides which, the application of the escharotic to the uvula causes much more pain than when the tonsils are destroyed in the same way. Though I have thus been able to get rid of the uvula in one or two cases, its removal with the knife is so easy and safe an operation, and attended with so little pain or hemorrhage, that it is certainly the preferable mode of treatment. I do not recommend therefore the use of escharotics for destroying the hypertrophied uvula.—*Med. Mirror, September* 1864, *p.* 522.

47.—GLYCERINE AS A VEHICLE FOR APPLICATIONS TO THE THROAT AND LARYNX.

By Dr. GEORGE JOHNSON, Physician to King's College Hospital.

Glycerine is a very convenient and useful vehicle for various local applications to the larynx. It is an excellent solvent for tannic acid. Tannic acid may be dissolved in glycerine in the proportion of two drachms to an ounce. This is a very useful topical astringent. Glycerine will also, by the aid of heat, dissolve as much as one-fifth of its weight of hydrochlorate of morphia. We seldom require so strong a solution as this, but a moderately strong solution of morphia in glycerine is a most useful soothing application in cases of irritable larynx. Glycerine, as a vehicle for other remedies, has this advantage, that being viscid, it adheres to the surface of the mucous membrane, and retains there the astringent or the sedative which it holds in solution. On this account it may very usefully be mixed with a solution of nitrate of silver. A mixture of glycerine with a solution of perchloride of iron is a useful topical astringent. Glycerine may also be made the vehicle for *alum*. Whenever glycerine is applied to the larynx it must be done by means of a brush; it is too thick a liquid to pass through a syringe.—*Lancet, July* 30, 1864, *p.* 114.

48.—ON A SIMPLIFICATION OF THE EXTRA PERITONEAL OPERATION IN THE SEVERAL VARIETIES OF STRANGULATED HERNIA.

By FURNEAUX JORDAN, Esq., Surgeon to the Queen's Hospital, Senior Surgeon to the Birmingham Eye and Ear Hospital.

It may be said compendiously that there are two classes of cases of strangulated hernia which require operative relief. In one the extra-peritoneal operation offers the greatest prospect of success; in the other it is necessary to open the sac. In the second class may be placed, 1, cases of gangrene, and, 2, cases that cannot be returned after the extra-peritoneal incision. All other cases may be placed under the first category. It is rare in Surgery to meet with so clear and unmistakable a rule of practice. In every case of strangulated hernia. except where gangrene is present, the Surgeon should first adopt the simplest method of relaxing the fibrous structures which strangle the protusion, and apply the gentlest possible taxis. In the few cases in which this proceeding fails, a second stricture having been sought for (especially in inguinal hernia), but not found, the sac may be opened in the usual way.

My experience coincides with that of numerous observers to the effect that the presence of gangrenous bowel may be very

certainly diagnosed. When inflammation reaches the coverings of the sac, as indicated by redness of the skin, infiltration (œdema) of the subcutaneous tissue, and loss of distinct definition of the tumour, with complete cessation of pain, the bowel is already sphacelated. Constitutional symptoms lend confirmation. Flickering pulse, physical and mental prostration, and the other phenomena of collapse are present.

Mrs. J., aged sixty, had constipation five days, and vomiting, which had been stercoraceous for several days. Unfortunately, the hernia was not discovered until too late. At the request of the Medical attendant I saw the case. I found in the right groin a flattened, hard, red swelling, extending from the pubes to the ilium, and one inch above and two inches below Poupart's ligament. The collapse was marked. Incisions disclosed black shapeless bowel. There were no fæces in the sac, but a copious flow followed division of the margin of Gimbernat's ligament. I gave a most unfavourable prognosis; she sank next day.

I would emphatically observe here that if there be a condition of the bowel, which, beyond all others, is irreparably injured by exposure and handling, it is where inflammation is far advanced and gangrene is imminent, without being actually present.

In irreducible hernia there is now no difference of opinion as to the impropriety of opening the sac. In these cases strangulation occurs not from constriction of the neck of the sac, but from the protrusion of additional bowel. Opening the sac in a large irreducible hernia is one of the most fatal of Surgical proceedings, and the more direct the communication with the abdomen the greater the fatility, as in cases of irreducible umbilical hernia. Here to practise the simplest means of securing the return of the recent protrusion should be our highest aim.

In cases which are reducible prior to strangulation it is difficult to conceive that strangulation can occur in a certain number of hours from changes in the neck or contents of the sac. To conceive this we are required to believe that in an inflammation of a few hours' duration, developed under circumstances antagonistic to formative results, adhesions are formed so firmly as to be incapable of rupture on the application of the taxis subsequently to the relaxation of the firmer extra-peritoneal structures. It is a significant fact (I do not claim for it more than it is worth) that strangulation never occurs in those rarer forms of hernia which pass through openings, devoid of fibrous margins, although such herniæ have sacs and the sacs have necks. Practically we find that cases (perfectly reducible prior to strangulation) in which reduction cannot be effected after the firmer structures cease to constrict are remarkably rare.

The following cases show that after many days of strangulation genuine adhesions do not form :—Mrs. F., aged thirty-eight, brought into Queen's Hospital five days after occurrence of strangulation, (and eight after parturition). Sac distended with dark fluid, and bowel claret coloured, but no adhesions or gangrene. Recovered rapidly after division of stricture. I was requested by a practitioner in the country to see Mrs. C., with similar phenomena and result. Another practioner in the country called me to see M. H. with strangulated inguinal hernia of six days' duration. The bowel was sticky from inflammatory products, but no real adhesions were present. The patient died. These cases occurred before I performed the operation to be described. I believe, from cases in which I have myself operated that in many instances where irreducibility continues after division of the less yielding tissues, it is the irreducibility of a small portion of the contents which has not been observed, but has existed before strangulation. Fresh protrusion, a noticeable tumour, and strangulation occur together.

When cases of strangulated (reducible) hernia occur which actually require the extra-peritoneal to be converted into the peritoneal operation, one, two, or three conditions will be found —constriction of the neck of the sac, adhesions within the sac, or increased size of the contents of the sac. Each condition is produced by processes occurring subsequently to strangulation.

I have so far spoken of the constricting agency as lying either in the non-distensible structures which surround the several outlets at which herniæ occur, or in the neck of the sac itself. The crural sheath does not constrict in femoral hernia, or the fascia transversalis (except at the inner ring as a special structure) in inguinal hernia; the fascia transversalis is never the seat of strangulation in umbilical hernia; the subperitoneal fatty fascia is never a constricting agent in any variety of hernia. All these tissues are, of course, compressed into a small space within the several fibrous outlets, and, after death, such compressed tissues present considerable rigidity; during life, however, they are not themselves compressing agents. Why, then, should these tissues be divided if the really compressing structures lie externally to them.

It is the object of this paper to show that all that is necessary in practice is to relieve the tension of Gimbernat's ligament in femoral hernia, of the conjoined tendon or fibrous apertures in inguinal hernia, and of the linea alba in umbilical and the more common forms of ventral hernia. As a rule, these structures can be reached and relaxed, the cutaneous tissues only being divided prior to the use of the hernia knife.

The great excellence of Mr. Gay's contrasted with the previous extra-peritoneal, operation consisted in this :—The incision

was much more limited, and was made at a distance from the tumour. In Mr. Gay's operation, however, the sub-peritoneal tissue was reached both in the operations for femoral and for the other varieties of hernia; it was, nevertheless, an immense stride in the progress of hernial Surgery.

I have now frequently in cases of strangulated hernia, especially in femoral, the variety which most commonly requires operative relief, performed, with strikingly satisfactory results (especially in the extreme shortness of the convalescence), an operation of which the following are the chief characters, and which, since it aims at keeping as far as possible from the peritoneal structures, I would suggest might be termed the pre-taxoid operation. A short incision is made through the skin and superficial fasciæ near the neck of the tumor, and sufficiently large to admit the end of the finger. The superficial fasciæ are divided (not necessarily completely) to an extent which will enable the finger nail to detect the interstice or boundary line between the firm, immovable, unyielding apertural margin and the more moveable and yielding tunics of the hernia. For example, in femoral hernia it is not necessary to cut through every flake of connective tissue down to Gimbernat's ligament. It is enough if the finger nail discovers with ease and certainty the margin of that structure. As the hernia knife (blunt pointed, but cutting to the point) is insinuated along the finger nail, close to the firm constricting margin, it may advantageously carry before it a little connective tissue; thus all tissues are divided to the least possible extent, and the knife is much less liable to perforate the peritoneum. The practical rule, then, in all cases of hernia is to divide the skin and just enough of the subcutaneous connective tissue to permit the tense margin to be felt which it is proposed to relax. Anatomical knowledge is applied here not to determine how much tissue shall be divided —that is best decided by the touch—but to determine the precise direction in which and the precise point to which the finger nail is to be carried. I regard it as an important feature of the pre-taxoid operation that a lamina of tissue (crural sheath, fascia transversalis, &c.) shall, if possible, come between the peritoneal structures and the hernia knife. The herniatome is next used in the most sparing manner, not only in the very limited application of the edge, but, which is even more important, in the limited introduction of the point, for the peritoneal structures are stretched thin and closely applied to the abdominal aspect of the apertural structures. In few cases should the herniatome pass beyond the finger nail, and in umbilical hernia not at all. Incision of the tense margin is followed by pressure with the nail and tip of the finger in the direction in which the incision was made. Pressure must on no account be made towards the

abdominal cavity; neither fingers, directors, nor knives should be carried in this direction. If the finger be passed into the abdomen before the margin is relaxed there is no strangulation, and no operation should have been performed; if strangulation be present, the introduction of the finger after the limited use of the herniatome is more likely to injure, and seriously injure, the bowel and peritoneum than to effect any useful dilatation. Gentle and momentary application of the taxis to the unwounded coverings completes the operation.

It is not inopportune to remark here parenthetically that certain points in the anatomy of hernia, even at the present time, give rise to great difference of opinion. These differences of of opinion disclose on both sides the adhesion to a school of anatomy which is fast becoming antiquated, if not obsolete. The philosophic teachings of Reichert—in the main accepted by our most reputed histologists—applied, as they assuredly ought to be, to Surgical anatomy, show most clearly that, say in femoral hernia, there are, as separate entities, no ligaments, no sheaths, no fasciæ, no tendons, but that there is one single indivisible mass of connective tissue, firm here and loose there, having one disposition here and another there, and being directly continuous with the skin in one direction and with the bone or an epithelial surface in another. With these firmer and looser tissues their forms and localities, it behoves the practical Surgeon to make himself—there is only one way to do it—minutely familiar. It is perfectly idle to dispute whether the femoral sheath is a prolongation of the transversalis and iliac fasciæ, on the one hand, or the fascia lata on the other, or whether the so-called saphenous opening does or does not exist, seeing that the femoral sheath, the fasciæ lata, the cribriform, iliac, and transversalis fasciæ, Poupart's and Gimbernat's ligaments, and the aponeurosis of the external oblique are all one tissue—a tissue without attachments, without junctions, without lines of demarcation.

There is one fact in modern histological anatomy of immense importance in relation to Surgical pathology. A basement membrane has no existence. The epithelium of surfaces is placed immediately on connective tissue, which is very dense underneath the epithelium, but becomes gradually less dense as it passes deeper. Now, in inflammation of all surface membranes, it is this less dense connective tissue which is the seat of the greatest pathological activity. Erysipelas, bronchitis, pleurisy, and peritonitis are illustrations of this remark. It is one of the principal objects I have in view in the pre-taxis operation to avoid injury to that inflammable portion of the peritoneum which is called subperitoneal fatty fascia.—*Medical Times and Gazette, June* 11, 1864, *p.* 641.

49.—ON THE EXTRA PERITONEAL OPERATION FOR STRANGULATED HERNIA.

By Furneaux Jordan, Esq., Surgeon to Queen's Hospital, and Senior Surgeon to the Birmingham Eye and Ear Hospital.

[After some preliminary remarks, Mr. Jordan describes a few details of the operation as applied to the several varieties of strangulated hernia.]

In every variety the superficial incision is best made on that side of (never over) the neck of the hernia at which it is intended to make the deeper incision. It may be made in any direction, vertical or transverse, as its object is simply to admit the finger; perhaps more freedom of movement for the finger with greater distance from the tumour is obtained by making it a right angle to the deeper incision. Hence, in femoral hernia, it will be vertical to the inner side of the neck of the sac; in inguinal, umbilical, and ventral hernia, it will be transverse and above the neck of the sac. In each case it may be made about an inch from the neck of the sac. In femoral hernia, the incision is made over the pectineus muscle, which lies at some distance from the surface, and is covered by a large quantity of connective tissue in firmer and looser strata, which may with sufficient accuracy be called by their well-known names. This superabundant tissue may be divided downwards towards the pectineus until the finger can be carried outwards, upwards, and backwards to the edge of Gimbernat's ligament. The hernia knife is carried along the finger nail, and a line or two (according to the amount of tissue carried before the knife) beyond; the edge is turned to Gimbernat's ligament, and a very sparing incision made transversely inwards. The tip of the finger now makes firm pressure towards the spine of the pubes. The thigh being flexed and thoroughly rotated inwards, gentle and momentary taxis (it should be nothing more) effects reduction of the tumour. If the finger nail cannot be carried easily to the margin of the ring, the fasciæ have not been sufficiently divided, or, in quite rare cases, the upper horn of the saphenous opening, instead of being blended with Gimbernat's ligament, may be brought lower down. In either case incisions carried down more completely to the pectineus will remove all difficulty. Gentle pressure outwards on the moveable sac will always throw much light on the precise locality of the immovable constricting margin.

I was requested by a Medical Practitioner in Birmingham to see Mrs. H., aged thirty, with strangulated femoral hernia of thirty hours, which, under the complete influence of chloroform, resisted all justifiable use of the taxis. I carried the point of

the hernia knife by an almost subcutaneous incision to the margin of Gimbernat's ligament. Pressure on the incision, followed by momentary application of the taxis, effected reduction of the tumour. The next day the patient laughed and chatted with her friends, and was kept in bed with difficulty. I was called by a Surgeon in the country to see Mrs. R., aged forty-seven, with strangulated femoral hernia of two days' duration. There was extreme depression, but no sign of inflammation in or around the sac. I performed the operation I have described, and a rapid and excellent recovery followed. The two cases just recorded are simply illustrations of a very frequent form of hernia. The next case is more unusual :—Mrs. D., aged eighty, was admitted into the Queen's Hospital under my care. Collapse was so extreme that she was supposed to be dying. I performed the simple operation described above, and made pressure on the incision. On applying the taxis there was immediate reduction of almost the whole of the tumour. The sac, however, was not completely empty, and I consequently extended the incision over the coverings and opened the sac, which contained a small portion of omentum fastened to the sac by one old small adhesion. She never rallied from the shock. After death there was no trace of inflammation anywhere.

In inguinal hernia, the careful division of the superficial fasciæ will enable the finger to pass along the neck of the tumour to the seat of strangulation, when a limited incision upwards, pressure upwards, flexion of the thigh, and taxis will mostly effect the desired object. The operation is especially applicable to umbilical hernia, as division of the cutaneous structures brings the finger so easily to the margin of the opening. It is most imperative here to carry the hernia knife as far as the nail only; where the margin of the linea alba projects after the manner of a short tube (as in a large irreducible strangulated case which occurred to me recently, in which convalescence followed the pre-taxoid operation, but which ultimately terminated fatally in consequence of the grossest imprudence), the nail must precede the point of the knife step by step. The linea alba is thin; the fascia transversalis is extremely thin; the subperitoneal tissue is scanty, and, with the peritoneum, is pressed close to the margin of the outlet. In irreducible umbilical hernia it is of immense importance not to open these thinner structures except the linea alba.

All the advantages of the extra-peritoneal operation may be, with still greater emphasis, claimed for the simpler form of operation. There is less danger of hemorrhage, and should it occur it will be external and visible. Should I meet with an abnormal distribution of the obturator artery, and accidentally

wound it (an accident less probable in this operation than in any other), I should arrest hemorrhage with wire pressure applied at the proximal side of the arterial wound by means of a curved needle. The bowel is not exposed, handled, or wounded either below or above the stricture. (See James, of Exeter, on the liability to the latter accident in the ordinary operation, even in the most skilful hands). Inflammation, ulceration, and incipient (speckled) gangrene are repaired more rapidly and more completely in the subcutaneous condition in which the abdominal organs are naturally placed.

If the operation I have described be performed with extreme promptitude in cases of reducible strangulated hernia, it is, *per se*, so free from danger it is impossible that the result should be unsuccessful, save in exceptional cases where the shock of the strangulation itself is sufficient to cause death, as in extreme old age, or in cardiac or pulmonary disease. I willingly grant that earliness is even more important than the mode of operating. Nevertheless, other things being equal, both experience and statistics show that the operation of not opening the sac is incomparably superior to the older method. I find in Mr. Bryant's excellent clinical memoir on the experience of eight years of strangulated hernia at Guy's Hospital, that in the cases which died after the extra-peritoneal operation during the period referred to, not in a single case could the cause of death have been obviated by opening the sac. It is to be feared that the older and severer operation of opening the sac indiscriminately is still so frequently resorted to because of the ease with which it is performed. To cut down until the bowel is found, to discover the hole through which it escaped, to cut that hole larger with a knife, and thrust the intestine back into the belly, requires no anatomy, and but moderate caution.

Perhaps the greatest changes in the modern Surgery of hernia are seen in the "prior" and "after" treatment of strangulated hernia. In the prior treatment there is but one proceeding which deserves the confidence and the expenditure of the time of the Surgeon—namely, the complete administration of chloroform, and under its influence only, the application of the taxis for a very few minutes if the hernia be femoral and small (in certain cases not at all), a few more if inguinal and large. Before chloroform is given the Surgeon should be prepared, if necessary, to adopt operative measures. Bleeding, antimony, tobacco, the warm bath, prolonged taxis, and taxis without chloroform, are now, or ought to be, of the past. Ice locally, and opium internally, are justifiable only in exceptional circumstances, as when a House-surgeon waits for a Surgeon, or one Surgeon waits for another. The after treatment is equally clear. Rest to the contused, exhausted, and inflamed bowel must be

secured by means of opium, and the persistent avoidance of purgatives by the mouth. After many days, if the bowels do not act, one or two enemata daily will in time bring about the desired result.

In conclusion, I would again urge the proposition that the simplest form of extra-peritoneal operation is desirable in all cases where reduction by the taxis is desirable, but cannot be effected. Too frequently Surgeons apply vigorous and prolonged taxis, and, if it fails, immediately proceed to the severer operation of opening the sac. Now, either it is improper to apply the taxis, or it is improper to open the sac before resorting to a simple measure which renders the taxis successful.—*Medical Times and Gazette, July* 2, 1864, *p.* 5.

50.—ON THE CAUSES OF HERNIA.

By J. A. KINGDON, Esq., Surgeon to the City of London Truss Society.

[This paper is an abstract of one read before the Royal Medical and Chirurgical Society.]

The object of the paper was to call in question the accuracy of the prevailing opinions concerning the causes of hernia. Instead of its being due almost entirely to mechanical causes, as most writers since the time of Scarpa have held, the author endeavoured to prove that hernia was the result of an abnormal condition of the peritoneum it is entirety, either from congenital malformation or inherent disposition to be relaxed. Without disputing the majority of the arguments that favoured the mechanical theory, the author attempted to show that mechanical causes could not operate without antecedent derangement of the peritoneum. So long as the mesenteries remained unrelaxed, in healthy tone, and with their normal attachments, the author held that hernia not only did not but could not occur, and that there was no disposable force that could stretch the mesenteries and dislodge the viscera. But when, from congenital defect or subsequent derangement, the mesenteries allowed the intestines to descend in the cavity of the abdomen below their proper sphere, then mechanical causes could act—then the arguments of those who advocated the mechanical theory would apply; protrusion would then be due to loss of equilibrium between the muscular parietes and the rings, but not till then. The author attempted to show that hernia was fundamentally an affection of the peritoneum generally, by pointing out that the condition of the parietal layer determined the kind of hernia—i.e., the aperture through which it escaped. The facts and arguments in support of these views were set forth in the paper.—*Lancet, July* 23, 1864, *p.* 95.

51.—PERSULPHATE OF IRON IN HEMORRHOIDS.

Dr. GEORGE S. CARTWRIGHT, Assistant Surgeon, U. S. V., highly extols (Cincinnati Lancet and Observer, May, 1864) the efficacy of the persulphate of iron employed as an ointment in the treatment of hemorrhoids. It is especially beneficial, he states, in ulcerated hemorrhoids; or in those whose constitutions are debilitated from diarrhœa, long marches, and excessive fatigue of any kind.

Of several cases which he relates illustrative of the advantages of this remedy, we select the following:—

"Major ——, U. S. A., of full habit, has been the subject of slight hemorrhoids for several years. For the last twelve months has been obliged to travel a great part of the time in a rough vehicle. Applied to me December 5th, 1863. On examination found a small tumour, external to the sphincter, about the size of a large pea; when at stool it would protrude to the size of a small walnut, and would with difficulty be returned.

"*Treatment.*—Lead water freely applied to the part, and R. ferri persulphas ʒss., cerate simplex ℥j. Rub well together and apply on retiring at night. The effect of the persulphas was almost immediate, relieving pain and cauterizing the part.

"I would state that he had previously used ointment of galls, tannin, opium, &c., with only temporary relief. The effect of the persulphas is permanent, and in the above case he was able to ride on horseback, or take active exercise, within two weeks after commencing the use of iron, without the least inconvenience. It is now two months since he first commenced the use of it and has not had any return since."

Dr. C. sometimes employs the ointment with double the proportion of the persulphate used in this case.—*American Journal of Medical Sciences, July* 1864, *p.* 278.

ORGANS OF URINE AND GENERATION.

52.—ON LITHOTOMY IN CHILDREN AND ON LITHOTRITY.

By WILLIAM FERGUSSON, Esq., F.R.S., Surgeon Extraordinary to H. M. the Queen.

[Mr. Fergusson does not consider that a "wholesome idea" of the operation of lithotomy in young children exists at the present time. Certainly, when satisfactorily accomplished the operation is almost certainly successful; but we often hear of difficulties and great mishaps, which, however, are seldom made public. We occasionally hear of an operation being performed and no stone found, although it had been previously detected by sounding. In such a case the bladder has never been reached at all.]

After many operations on the adult and on the young subject, I had in a manner forgotten my early knowledge of the position of the bladder in children, and not only was content to make the incisions with a simple scalpel, but had in a measure got careless about some matters of great importance. On the 17th March, 1849, I had to operate on a boy four years of age at King's College Hospital. I used a scalpel, as I had often done before and made the ordinary incisions for lateral lithotomy. A grooved staff with a large curve was the director into the bladder. In making the deepest part of the incision I purposely used the cutting instrument as lightly as possible, with a view to open only a part of the membranous portion of the urethra, and notch the prostate and neck of the bladder. These objects being effected, the point of the forefinger of my left hand was, as usual, placed on the staff, and pushed gently towards the bladder. The finger went on, but I was aware that it had not got between the urethra and the staff. With an insinuating movement (much tobe appreciated by the lithotomist who, as I do, professedly makes a small incision in this locality), I endeavoured and hoped to get its point as usual into the urethra and neck of the bladder. But here I felt conscious that I had failed. I was aware that the finger was getting deeper as regarded the depth of the perineum, but that I was not materially nearer the bladder. I could feel a considerable space at the point of my finger, and was convinced that the upper part of the membranous portion of the urethra, as well as the sides above the wound, had given way to the pressure of the point of the finger, and that now, as the latter was getting deeper into the wound, I was only pushing the prostate gland and neck of the bladder inwards and upwards. These parts seemed to recede before the smallest imaginable force, whilst I felt that I could in a manner make any amount of space round the bare part of the staff. I had no difficulty in distinguishing between the surface of this space and that of the mucous membrane of the bladder. Moreover, I knew that I had never crossed that narrow neck which is always felt as the finger passes into the bladder when a limited incision is made. An impression came over me that I was about to fail in getting into the bladder, and I had the idea that unless I could open the urethra just in front of the prostate more freely I should possibly never reach the stone. Any additional use of the forefinger of the left hand only endangered the further separation of the prostate and neck of the bladder from the pubes, and I was conscious that the only safety lay in cutting a little more freely on the groove of the staff. This I effected with great caution, and then I could appreciate the passage of the finger as usual through the prostate and neck of the bladder. The stone was thereafter easily touched and removed;

but when all was finished I was forcibly impressed with the idea that I had nearly failed in the performance of the operation. An onlooker might not have been able to perceive the cause of this emergency, but I was myself conscious that I had not reached the bladder, even at a time when the finger seemed deep in the perineum. Happily, the patient recovered, though slowly, in consequence of the lacerated character of the wound and the formation of an abscess in the left testicle.

Until this date I confess I had never fully appreciated this danger and difficulty in lithotomy in young subjects. I had read of the slipping of the gorget in this operation, and become acquainted with the fact that futile incisions had often been made, and with the supposed mistake of the surgeon in cutting when no stone was present; but now a new idea flashed on my mind, and from that time I have never lost sight of it. I have never performed lithotomy on children in public without referring to it. I have observed, since that time, that the subject has been alluded to by certain surgical authors, but I am not aware that it had ever been specially noticed before.

From all my experience I feel justified in stating my conviction that most of the cases heretofore related as instances where the incisions for lithotomy have been made and a stone has not been present, have been examples where the surgeon has failed to reach the bladder from the cause just narrated. Since I have been impressed with this view I have known of cases where, death having followed the incisions, the stone has been found in the bladder at a post-mortem inspection; and I have also heard of others where the stone has been successfully extracted at a second operation, after the first wound has been allowed to heal.

The mishap is much more likely to occur than most surgeons imagine, and my opinion is founded upon the following grounds:—The size of the wound is necessarily limited, so that the forefinger of the left hand in a manner fills it. The perineum is much deeper in proportion in the child than in the adult, and, in addition, all the material is loose, lax, and loaded with fat. The circumstance that the bladder is more abdominal than pelvic in early life has been greatly overlooked. The slender tissue of the membranous portion of the urethra, the narrowness of the tube (both contributing to the facility with which the circumference may be torn through), and the small size of the prostate (rendering its discrimination difficult), all constitute peculiarities which are not conspicuous in the adult. In the latter there are room, development, bulk, mass, and a final wall of prostate and bladder, which may be all said to be deficient in the child.

From these data I have long since come to the conclusion,

and have long taught in my lectures, that lithotomy in children, whilst comparatively free from danger as regards the final result, is by no means so free from difficulty or the risk of failure. The safety of result has been mistaken for simplicity of execution; but I hope that what I have now stated may be a warning to the young lithotomist. It may naturally be asked how the danger referred to may be avoided. My answer is, that more care than is usually given should be devoted to the operation, and that as the surgeon cuts into the membranous portion of the urethra and neck of the bladder he should never push the point of his forefinger onwards unless he feels certain that he has it between the staff and the wound.

To show that I do not now speak without a fair share of experience, I take the liberty of stating that of one hundred and fifty-nine patients on whom I have performed lithotomy, fifty have been under the age of puberty—that is, under fifteen. Experience, instead of diminishing my anxiety on such occasions, has rather increased it; for as numbers have enlarged, I have been more and more impressed with the views above given Of the fifty cases I have lost two—one was the third child I operated on, the other was the forty-eighth; so that of the whole number, I cut consecutively forty-four without losing a case, or forty-seven losing only one. Of the two lost, one died on the twelfth day after, from unhealthy inflammation; the other on the second day, from hemorrhage and shock, the bleeding being probably the principal cause. Six of these were done in private practice, the rest in public—one (a fatal case) in the Royal Infirmary of Edinburgh, the others (forty-three in number) in King's College Hospital, I am not aware of such a list having been published before; and to myself, as I believe to the profession generally, it would be interesting to hear the results of the practice of those who have had greater experience than I pretend to in lithotomy in children.

[Mr. Fergusson has now treated between 250 and 300 cases of stone in the bladder by lithotomy and lithotrity.]

In a large majority of my own early cases, I was content with crushing the stone, and waiting for the gradual and spontaneous egress of the fragments. I did make use of the so-called scoops, the large-eyed catheters (double and single), injections and currents of water, single or continuous; but with results so unsatisfactory that I had no confidence in any way of getting rid of fragments excepting by forcible disintegration and chance. In some cases nature and chance did all that was expected: the fragments came in good time, and the case was complete. In others, however, there seemed no end to the disease, which, in reality, appeared rather increased by the comminution of the

stone. In one instance during the early days of anæsthesia, the patient bore lithotrity as if nothing had been done. Whatever roughness there might have been in the operation, he was under the influence of ether, unconscious, and he bore his condition afterwards most manfully. His malady, notwithstanding, seemed rather to increase than diminish; and his sufferings at last from the fragments were such that he requested to be relieved by lithotomy. I myself, wearied with the repeated unsatisfactory results, willingly complied. Lithotomy was performed. I extracted ten small stones by one swoop of the forceps. The operation did not last a minute; and I do not think that I ever performed lithotomy with less injury to the structures implicated or with more temporary satisfaction to myself. Yet the patient, a fine healthy man in all other respects, died within a few days.

Although unfortunately experienced in the mysterious way in which patients die after both lithotrity and lithotomy, I was greatly struck by the rapid result in this instance. He had born with comparative impunity more than the usual amount of irritation and suffering after lithotrity; but he sank under lithotomy, like one with the powers of life already exhausted to the last degree.

This case made a strong impression upon me. I wondered how a man could bear so much from lithotrity and so little comparatively from lithotomy. As he stood the use of the lithotritic apparatus so well, I asked myself how it might have been if I could have removed all the fragments which would not come away, and which by their irritation kept upon him all the sad sufferings from stone.

Some years afterwards my attention was further attracted to this subject. I felt dissatisfied with my experience of extracting stone from the female bladder, either by cutting or dilating. In July, 1854, a case of stone in the female came under my notice. The patient was three years old, and wishing to avoid dilatation, I used a lithotrite made for the purpose by Weiss, smaller than any which he had yet constructed. With this, and a scoop of the same size, I cleared the bladder in two operations under the influence of chloroform, and the case was rapid and perfect in all respects. I crushed first, and with the scoop extracted the fragments. With this I either extracted a fragment at once and entire, or jammed it so between the blades that I could withdraw the instrument (the blades containing the fragments) readily without serious damage to the urethra.

I was so much pleased with this practice and the instruments that I resolved to try further, on the first opportunity, in the adult. In December of the same year, a gentleman with a

moderate-sized stone came under my notice. On the 6th the stone was crushed under chloroform. On the 13th, several fragments having passed in the interval, crushing those remaining was resorted to. On the 19th a few had passed, but not all that were expected, and in consequence the small scoop was introduced, and the bladder was, after several manipulations, seemingly cleared. The next day the patient was so well that he left town to go a considerable journey. In May, 1858, nearly four years after, this patient came to town with some irritation like his former early symptoms. I examined, and detected stone. Having become in the interval, from further experience, more familiar with the use of the little scoop, I applied it here, and, without much trouble to myself or distress to the patient, extracted three small calculi, each about the size of a flattened pea. In a few days all irritation had ceased, and thus a cure was effected without even crushing, but simply by extracting. In July, 1859, I removed from the same patient an entire stone, about half an inch in diameter, with the same instrument, and from that time he has remained free from disease.

Since the above dates I have almost invariably used these instruments in the process of lithotrity in the male. I have generally, as a first step, introduced a lithotrite of considerable size, equal to a No. 10 or 11 bougie, and broken the stone into various fragments. Next, I have taken the smaller lithotrite, above referred to, attacked these fragments, and then have used the small scoop with the object of removing several fragments, so that the patient might have satisfactory evidence that the stone had been crushed. In a few days after the small crusher and scoop have again been used—particularly the scoop, wherewith the fragments which have been found sufficiently small have been extracted singly, or two or three at a time. Thus, instead of waiting for the spontaneous escape of the fragments, a process usually both uncertain and tardy, the stone has been got rid of by direct and precise surgical interference.

If this practice be judiciously carried out, it will, under ordinary circumstances, prove an immense advantage ; and in many instances a stone may be removed with a rapidity little short of the time needful for lithotomy, with the advantage that the patient need not be confined to his bed for a single day.

My chief object in this portfon of my lecture is to draw attention to this subject. It is comparatively little known ; and, moreover, a very general impression prevails that it is incorrect to extract fragments. The various instruments and mechanical devices which have been from time to time recommended or used for this purpose, or to facilitate their escape, have generally proved of so little service that they have been in a manner

overlooked or laid aside by the practical lithotritist. It has even been taught that no attempt should be made to extract fragments; and, as I have already stated, so strong is the feeling in this respect, when stone in the bladder is conjoined with paralysis of that organ, that the operation of lithotrity is considered highly objectionable, if not impracticable, because there is no likelihood of the fragments passing away, excepting through a large-eyed catheter or scoop made specially for the case.

With the instruments which it is my object to recommend, the process of lithotrity, and I believe the distress of the patient both bodily and mental, may be considerably abbreviated; and instead of paralysis being objectionable, it is perhaps the condition most favourable to the operation, as it generally happens that with paralysis there is a callousness of the mucous membrane of the bladder which permits a freer use of the blades than under ordinary conditions.

In early days a large instrument was thought essential for the due performance of lithotrity. The risk of bending or breaking was deemed considerable and serious, and on these grounds the largest instrument which the urethra would admit was selected for use. If a catheter or so-called scoop was used afterwards, its magnitude was thought of equal importance; and to give every advantage in this respect, it was recommended that the urethra should be dilated, and, if needful, the orifice in the glans enlarged by incision, prior to the use of lithotritic instruments.

As to the advantage of a larger urethra there can be no doubt; but I believe that large instruments are by no means so essential. Indeed I feel assured that comparatively small-sized ones are an advantage, and in certain stages of the treatment I believe them of great value.

The modern lithotrite, particularly of the best English makers, is a very superior instrument to those in former use; and less force is required to break an ordinary stone than was imagined. We seldom hear of an instrument of the kind either bending or breaking; and in the course of time I have come to the conclusion that one of small diameter permits of more ready manipulation than where the size is such as to fill, and be in a manner grasped by, the urethra. Hence, then, I have for many years employed lithotrites of smaller diameter than those in common use. An objection to small sizes has been made, because when the bladder is irritated to spasm the water escapes, whereas it would not if the urethra were filled (plugged) by a large instrument; but the escape can readily be prevented, if desirable, by grasping with the fingers and thumb. Even in regard to the quantity of water required in the bladder during the operation,

I believe that there is no such necessity for a large amount as some have imagined. When the organ is distended with eight, ten, or twelve ounces, the stone is usually more difficult to be caught than when the quantity is smaller. The slightest touch causes it to move where there is a large amount of fluid, and fragments are certainly much more difficult to be detected and seized. No doubt it is unwise, even dangerous, to open the blades of a lithotrite freely in an empty bladder, or one with very little water in it; but I have long been convinced that there is no need for the presence of so much fluid as some have thought.

The chief objections that I myself have found to very small-sized lithotrites or scoops are, the comparative difficulty of passing them into the bladder, and, especially, the comparative difficulty of sounding for fragments. In the finer manipulations of the sort it is hard to say whether the sense of touch or of hearing is of the greatest value. I am almost inclined to give the ear the preference; but even with this it is of the greatest consequence that the utmost facility of movement should be permitted, and hence I am averse to the use of the sounding-board, as recommended by Mr. Brooke and others, as also to the use of instruments which fill up the urethra to such an extent as to prevent the free movement of the point of the instrument within the bladder.

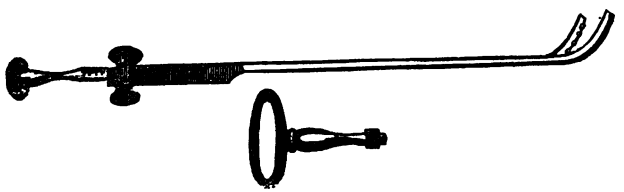
I was so early impressed with the necessity of having a narrow shank for a sound, so that every facility should be given to movement, that I had Heurteloup's sound, as it is called, modified accordingly. The shank was made of smaller diameter by several sizes than the curved end, and thus the latter was a sort of lob, which could be turned about readily in all directions, while its comparatively large size gave more certainty to both hand and ear. An instrument of the kind (Fig. 1) has been

FIG. 1

depicted in the later editions of my work on Surgery, and is now in considerable general use. A sound of this sort is of far greater value than one with a thick stem, or with a slender stem

and equally slender point; and in accordance with my views on these matters, Mr. Matthews has lately constructed, on his own devise, a lithotrite with a narrow stem and lob-point, which in my opinion, goes far to facilitate the effective use of the lithotrite in ordinary cases of stone. This figure (Fig. 2) gives a representation of it. The force is applied by the rack and pinion,

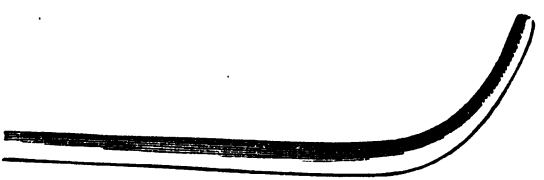
Fig. 2.



in accordance with my own views on this subject, but of course the same shape will answer for the various ways in which the screw force has been so admirably applied in modern times by Messrs. Weiss and Mr. Coxeter. The figure shows the blades open, but when closed there is a lob-end, like that of the sound in Fig. 1. The narrow shank permits free movement both in the urethra and bladder, and the increased bulk at the end intended to touch the stone, gives development to both touch and sound.

But these instruments (Figs. 3 and 4) are those to which I am most desirious of drawing attention. Fig. 3 shows the

Fig. 3.



diameter of a lithotrite which I often use in dealing with fragments, and Fig 4 shows a scoop of still smaller diameter. The small size must appear remarkable even to those familiar with the lithotrites and scoops hitherto known. I am not aware that any so small as Fig. 4 has ever before been made. Mr. Matthews, the instrument maker, informs me that there were none in the recent International Exhibition, and certainly none came under my own observation.

I have instruments of the kind in my possession varying in size from No. 3 to Number 6 bougie or catheter sizes, and with them I am in the habit, as I imagine, of diminishing the period usually devoted to the completion of lithotrity.

Generally when a stone is crushed the fragments are left to chance. So-called scoops and big-sized catheters have been introduced, and by the natural stream, or the force induced by injections, the fragments have been extracted, and have occasionally appeared in quicker time than if left solely to chance; but in the majority of instances the surgeon and patient have waited for the chance escape of the fragments without instrumental aid.

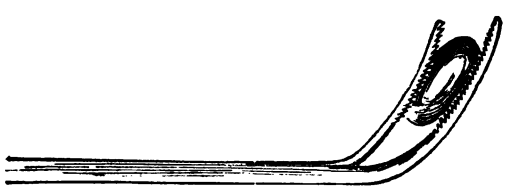
At this date, there is ample experience to show that after a stone is crushed by one or repeated sittings, the fragments do come away, and a perfect cure is the result. But in many instances the last fragment is tardily discharged, and many weeks or many months elapse ere the cure is complete.

It may be justly said of successful lithotrity that neither weeks nor months are long in comparison with the advantages gained; but, for the credit of surgery, it may be claimed as an advantage to do that in a few minutes which nature might take weeks or months to accomplish.

The chief object I have in view in these remarks is to establish this practice.

Supposing a stone crushed and its fragments comminuted, my proposal is, that these should be removed at the same time, or as soon thereafter as may be. The lithotrites generally in use are so large that they can be withdrawn from the bladder only when shut. If a fragment rests between the blades, it must be comminuted before these can be closed. The same remarks are applicable to ordinary scoops. Comminution must be so effectual that the blades may be closed, or nearly so, and all that can be brought away is the small bruised portion held in the hollow between the blades.

FIG. 4.



With a small lithotrite and scoop (Fig. 4) such as I am in the habit of using, a fragment of considerable size may remain

betwixt the blades, and yet the united size or diameter may readily pass or be drawn along the urethra.

In the last sixty cases I have adopted this practice generally and, with few exceptions, have had every reason to be satisfied. Occasionally, when over-anxious for a rapid cure, I have extracted fragments rather too large to come readily along the urethra, particularly in the prostatic or membranous portion, or at the triangular ligament. In some, when the urethra nearest the neck of the bladder has been rather roughly used, there has been considerable irritation; in others, even under such circumstances, there has been no irritation whatever; and in many instances I have been able to effect in one or two operations within ten days what, according to custom, would take weeks, or possibly months. I have done, in fact, by a precise surgical manipulation, that which according to ordinary rule is left entirely to chance. Experience has taught me that it is almost hopeless to trust to chance in all such cases; that in many instances the fragments may be weeks, or months, in coming away, even with attempts to coax them through catheters with large eyes and other instruments devised for the purpose. Here are the fragments of stone crushed in a man whose bladder acted regularly, yet only a few of these passed spontaneously; all the rest were removed by the scoop in question in three or four operations. From first to last there was not a single bad or even troublesome symptom. The patient was detained scarcely an hour in bed beyond his regular period of rest. I never saw one suffer less distress; yet, before he came under my notice, he had been strongly urged by an eminent surgeon to submit to lithotomy.

It is considered an extreme misfortune for a patient to have stone in the bladder and paralysis of that organ at the same time; and it has been well-nigh a rule in surgery that lithotrity is scarcely eligible in such cases, on the ground that the fragments are not likely to be expelled or carried off by the stream of urine through the urethra or a catheter. Of course I am aware that there have been successful cases of the kind; but the success has been more from lucky chance than from skilful surgical interference. And my object in these remarks is to claim for surgery a direct, special, and precise mechanical movement whereby that which has heretofore been left to chance is converted into a certainty. Here are the fragments of a large stone from the bladder of a patient who could not pass a drop of water without the aid of a catheter. All of them, with a few minor exceptions, were extracted with a small scoop. Here are the fragments—from a similar case, where, however, the urethra was unusually large—which were all extracted by a small scoop by my friend Mr. Henry Smith. The largest of

these fragments is about three-quarters of an inch by about half an inch wide, and it was extracted without any laceration or marked distension of the urethra; yet through the neck of the bladder, or a urethra of this size, even the urine would not flow.

The mechanical development, if I may so call it, of stone, shows the uncertainty of its spontaneous expulsion from the bladder. Most calculi have each a nucleus far smaller than the diameter of the urethra, but how few such nuclei pass? At all events, stones larger than the diameter of the urethra—nearly all the instances in which lithotomy and lithotrity have been performed—are examples where small round bodies (the nuclei) have not passed away spontaneously.

Now, I claim for surgery the power of taking away such bodies. I do not profess originality in this respect, for we all know what was done by Sir Astley Cooper in this way, but the instrument he used in removing small calculi—gravel, we might say—is of inferior mechanical powers to the modern lithotrite. It would be of little use in dealing with fragments in lithotrity; nor would the ordinary lithotrite or scoop be of much use in what I now speak about.

The small instruments which I now show are essential to the practice which I advocate, and with these I maintain (as I have amply tested in numerous cases) that lithotrity can be abreviated and brought to a certainty such as has not been claimed for it hitherto.—*Lancet, July* 2, 1864, *p.* 1.

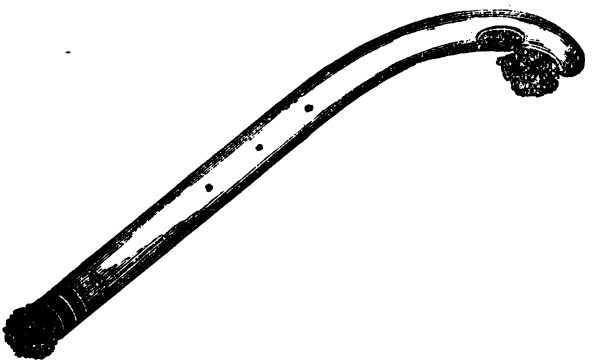
53.—A NEW TUBE FOR USE AFTER LITHOTOMY.

By JONATHAN HUTCHINSON, Esq., Surgeon to the London Hospital, and Assistant Surgeon to the Royal London Ophthalmic Hospital.

Many successful lithotomists have attached great importance to the introduction of a tube through the wound, and its retention in the bladder for several days afterwards. I have myself used it in several cases, and am inclined to think that it is of great value, *first*, in adults (in whom the wound is long); and, *secondly*, in those cases in children in which the operation has, for any reason, been prolonged, and the cellular tissue may probably have been considerably disturbed. It has often occurred to me that the tubes commonly used for this purpose, which are straight, and have a hole only at their ends, are not so well adapted as might be. In a recent case—that of an old man from whom I had removed three large calculi—I employed for the first time the one I now show you.

You will observe that the tube is curved, so that it may dip

into the lowest part of the viscus, behind the prostate. It is of silver, and of as large a bore as possible. A strip of sponge is passed through it from end to end, projecting at each. This sponge is intended to take up the urine by capillary attraction, and convey it through the tube. Then, again, over the end of



Lithotomy tube (half-size).

this tube we may fasten an India-rubber receptacle for the urine, and thus prevent the wetting of the bed and the consequent irritation to the patient's skin. The tube is perforated with holes, through which a ligature may be passed in order to secure on its exterior pieces of sponge whenever the occurrence of hemorrhage may make plugging of the wound needful.

It served its purpose very well in the case in which we used it, and the patient made good recovery.

With the straight tube, with a hole at its end, it is clear that, supposing the tube to project into the bladder, it will be requisite that the urine should rise to a certain height before it can gain entrance to the tube. Usually, therefore, I believe the urine finds its way by the side of the tube, and not through it. With mine, in the case mentioned, it was quite certain that urine flowed *through* it.—*Clinical Leetures and Reports of London Hospital*, 1864, *p.* 93.

54.—ON THE BEST METHOD OF DETECTING SMALL QUANTITIES OF ALBUMEN IN THE URINE.

By Dr. ANDREW CLARK, Assistant-Physician to the London Hospital.

It is of great clinical importance to possess a simple and certain method of detecting small quantities of albumen in the

urine. After a great variety of experiments, I have come to the conclusion that nitric acid used in the manner about to be described—a modification of the plan suggested by Heller—is by far the most sensitive, reliable, and handy agent that can be used for this purpose by the physician.

Pour not less than half a drachm of *fuming* nitric acid into a test tube; incline it, and then let a like quantity of the suspected urine trickle down *very slowly* to the acid, over the surface of which the urine will float without the slightest admixture. If albumen be present, a milk-white, sharply-defined, tolerably tenacious film will form at the exact point of junction of the two fluids. This film is never, at first, thick; and when the amount of albumen in the urine is extremely minute, it may be so thin as to become visible only by reflected light when the test tube is inclined Occasionally, when very thin, the albuminous film is dissolved in the course of a few hours. Commonly, however, it increases in breadth, diminishes in density, becomes yellow or yellowish-green at its under surface: and throws off minute coagula, which fall through the acid to the bottom of the tube.

Nitric acid used in this manner as a test for albumen is also a test of the presence of uroxanthine, or bile—either or both of which are not unfrequently present in temporary and functional albuminuria.

If, in immediate contact with the acid, a ruby or violet ring is developed, uroxanthine is present;—and bile also, if in addition to a red or violet there is formed likewise a green-coloured ring, which remains for some time.

Two feasible objections are urged against depending solely on the employment of nitric acid in the manner described, as a test of the presence of albumen; and I have myself noticed a third; but a careful examination of their force leads me to the conclusion that they are more theoretical than real.

When urine, rich in uric acid or its salts, or containing much scaly epithelium, is poured over cold nitric acid, a general turbidity arises, which is said to be undistinguishable from that produced by the presence of albumen.

But if the proposed test for albumen be properly applied, no turbidity will be produced by the presence of that substance, unless urates are also present. And then the white film of albumen is separated from the superimposed turbidity by a thin stratum of clear urine.

The turbidity produced by uric acid or epithelium is general, granular-like, and without any approach to coherence.

The turbidity produced by urates is sometimes abruptly defined below by an opaque, ring-like border, sometimes coloured, sometimes not; but a stratum of clear urine intervenes between this

ring and the surface of the acid, and, as above, the turbidity has no cohesion of parts. Besides this, the turbidity produced by lithates may be immediately dissipated by heat; and, if not in great excess, even by the heat of the hand closed around the tube.

The film produced by the contact of nitric acid with albuminous urine is quite different from any kind of turbidity. Confined to the layer of urine resting upon the acid, white like a disc of compressed cotton, tenacious, and when shaken with its associated fluids, breaking into flaky fragments, it seems improbable that any but the merest tyro should mistake it for anything but what it is.

In testing for albumen by means of heat and nitric acid, there may be no immediate response indicative of its presence; and yet after a few hours, a flocculent precipitate may form and fall to the bottom of the tube.

A specimen of urine examined within an hour after extrusion from the bladder may yield unequivocal evidence of the presence of albumen, and cease to do so after twelve hours.

Small films of coagulated albumen produced on the surface of nitric acid occasionally disappear within a few hours from the time of their formation.

Little importance is to be attached to the presence of small quantities of albumen in the urine of women a day or two before or after menstruation. It is common without any disorder of the kidney or any sensible discharge from the vulva.

Small quantities of albumen are often present in the urines of women with leucorrhœa, and of those who have recently had fits of hysteria.

One is not justified in asserting the absence of albumen in the urine upon the result of one or two examinations. I knew a case in which albumen occurred in the urine daily for several months; but it was present only in the urine first passed after breakfast, and was never, to the time of its departure, present in the urine passed at any other time.

Men sometimes discharge a thin whitish glairy fluid with the closing stream of urine in the act of emptying the bladder. This fluid is said to be seminal; but in none of the examples that I have examined were any spermatic filaments present. From its containing mucin, and young cell particles, I look upon it as an augmented and slightly altered secretion of the glands opening into the urethra. When discharged in any quantity, the urine containing it responds to all the ordinary tests of the presence of albumen.

Albumen in small quantities and unaccompanied by casts, may be present in the urine daily for three years, and at last permanently disappear. This occurred in a case under my

observation. The health which had previously been bad, rapidly improved after the disappearance of albumen from the urine and became ultimately very good.

Mere hepatic congestion is sometimes the cause of slight functional albuminuria. I had under observation for some time a lady whose "liver attacks" were invariably preceded by the appearance of small quantities of albumen in the urine. With the free purgation which was found necessary for the removal of these attacks, the albumen disappeared. I remember also the case of a gentleman who was subject to somewhat similar attacks. In his urine, however, free uric acid was associated with the albumen, and both stayed several days beyond the subsidence of acute disorder. But he was a wilful patient, and chose to live well even at the cost of being ill.—*Clinical Lectures and Reports of London Hospital*, 1864, *p.* 224.

55.—ON STONE IN THE FEMALE.

By Dr. G. M. Humphry, F.R.S., Surgeon to Addenbrook's Hospital, Cambridge.

Having seen a case of attempted lithotomy in the female where the urethra was incised towards the pubes, and the instruments for extracting the stone missed the bladder and passed into the cellular tissue in front of it, the girl dying next day; having also seen the difficulty and pain attendant on the use of metallic instruments to dilate the urethra; and having heard that my predecessor, Mr. Okes, employed catgut for the purpose, I took the hint, and have found it answer remarkably well. My plan is to select pieces of catgut bougie, about four inches long, and pass through the urethra as many as it will hold, securing them in their position by a thread tied round them and attached to a bandage which, passing over the os externum, has a slit in it to admit the bougies, and is tied at either end to another bandage round the waist. Usually I insert a silver catheter into the bladder first, and pass the bougies beside it. It allows the urine to flow off, and affords a *point d'appui* for the bougies. It is not, however, necessary, for there is usually sufficient room for the urine to escape between the latter. In a short time, the bougies, becoming swelled, dilate the passage in the gentlest and most gradual manner. After three or four hours it is quite easy to introduce one, two, or three more bougies, which begin to swell and further stretch the canal. Additional bougies may be added in such numbers and at such intervals as is found to be desirable; and the dilatation of the urethra is thus conducted in a safer and less painful manner than by any other device that I have known. Sometimes, on visiting the

patient, I find all the bougies expelled by the straining expulsory efforts of the bladder. This is of little consequence: I merely fill the urethra again with fresh pieces, and proceed as before. It is the best plan to visit the patient frequently, and add one or two bougies every second or third hour, taking care to introduce them gently, oiling them well, and inserting the fresh ones between those that are already there; by which means the sides of the urethra are less likely to be injured. In twenty-four or forty-eight hours the passage is sufficiently dilated to admit the easy introduction of a pair of forceps commonly used in lithotomy. The size required can be estimated pretty accurately through the information derived by the finger in the vagina, and had better be a little over than under the necessary mark. They must be used carefully; and, when the stone is in their grasp, the finger in the vagina will tell whether it is in the most favourable position, or will assist to bring it so. I take care to conduct the extraction very slowly, and with as little force as possible, giving the urethra time to dilate still further under the pressure of the forceps and the stone. The patient is under the influence of chloroform, and my object is to avoid lacerating the urethra rather than to shorten the time occupied in the operation. It is astonishing how wide the urethra may be dilated, without tearing, if only sufficient time be allowed; and, when it is torn in the extraction of large calculi, it very soon recovers, and the patient is able to retain the urine, which is shown by the following cases:—

Mary A., aged fifty-three, had symptoms two years. The stone was readily felt with the sound; and the finger in the vagina detected a lump, of the size of a chesnut, lying on the right side of the fundus. At eight a.m. I commenced dilatation by inserting three catgut bougies. At eleven she was suffering from the distension of the bladder, which was relieved by the addition of a catheter. At two p.m. another bougie; the same at five; and two more at nine. She slept a great part of the night. At eight next morning I found that the bougies had just escaped from the bladder. The urethra was well dilated, admitting with ease a small pair of lithotomy forceps, with which an oval lithic-acid stone, weighing two drachms and ten grains, was grasped in a favourable direction, and dragged slowly through the urethra without much difficulty. In three days she could hold her water quite well.

Susan J., aged three. Attempts had been made to extract the stone by the surgeons of her native place, but they found it to be too large to be drawn through the urethra. I could not feel it from the rectum. At twelve o'clock dilatation was commenced by two bougies: at five, a third; at nine, a fourth; at seven next morning, a fifth. They were passed with little

difficulty, and the child had not suffered much pain, sleeping a good deal. At eleven a.m., when she was under the influence of chloroform, a small pair of lithotomy forceps were introduced; the stone was quickly seized, and gradually drawn through the urethra, dilating and perhaps tearing a little as it passed. It weighed two drachms and twelve scruples. There was incontinence of urine for two days; on the fifth, she could retain the water four or five hours; and in two more days was discharged cured.

From a girl, aged four, I extracted by the same process a stone weighing three drachms and a half; from another, aged five, a stone weighing two drachms; and from a third, aged twelve, a rough stone weighing an ounce and a drachm, measuring in its smallest circumference three inches and three-quarters, and in its largest four inches and a half. They all recovered quickly and completely.

The conformation of parts in the female is extremely favourable for lithotrity. I have had recourse to it in some cases with excellent result. But where the stone is large, and especially in the child, I think it is better to effect the extraction at once. Under such circumstances, and in such delicate patients, the ureters, pelves, and calices of the kidneys are liable to be dilated and to take on inflammation if subjected to slight additional irritation, with the stone, or parts of it, remaining in the bladder and more or less impeding the flow of urine. The following case, which occurred early in my practice, shows the importance of being prepared to complete the operation of extraction at once. Had I done so the result might have been different.

A rather delicate girl, aged four, had symptoms of stone from birth. On Nov. 9th I commenced dilating the urethra with catgut bougies, and continued it gradually and carefully. They were several times expelled from the bladder. On the 11th, the urethra admitted a pair of forceps without difficulty, and I grasped the stone, which was evidently large. The forceps slipped from it, and I had some difficulty in seizing it again, but at length succeeded. I felt something give way; and, the forceps slipping again, I found one of the blades almost broken through near the middle. The child, having been on the table some time, and subjected to a good deal of pain, was sent to bed. Next day she appeared to be comfortable. On the 13th she was chilly and ill, and the urine rather thick. Some diarrhœa followed, with fever, an ulcer upon the palate, torpid languid state, and death on the 20th. The muscular coat of the bladder was somewhat thickened; the mucous membrane showed one or two spots of slight bruising. The urethra was a little congested, but showed no signs of laceration or ulceration. The

stone was as large as a bantam's egg. The ureters were dilated to the size of my finger. The pelves and calices of the kidneys were large, and, together with the ureters, were distended with thick purulent urine. The substance of the kidneys was studded with small spots of pus. There were, besides, pneumonic patches with commencing suppuration in the lungs, superficial ulcers about the isthmus faucium, redness and prominence of Peyer's glands, and red patches in the bowels.

Another girl, aged twelve, with symptoms of long standing, got wet and caught cold on her way to the hospital on the 14th November. She had stillicidium urinæ and prolapsus recti, and was feverish. On November 23rd she was sounded when under the influence of chloroform. The stone was evidently large; and her pallid emaciated appearance, quick feeble pulse, glazed lips, and sunken eyes, forbade any attempts at its extraction. She continued to decline, and died on the 26th. The stone larger than a walnut and of phosphatic composition, was roughish, and was grasped by the bladder, the coats of which were much thickened. The ureters were as large as my finger, but at the entrance into the bladder were of the natural size. The pelves, infundibula, and calices of the kidneys were much dilated and filled with urine, the cortical substance of the kidneys being reduced to very small proportions. On the right side the urine was turbid and purulent, and there was interstitial suppuration throughout the substance of the kidney.

Bone, teeth, hair, &c., extracted from the bladder.—Rebecca B., aged thirty-eight, sent to me by Mr. Wright, of Chatteris, in July, 1852. A healthy person, with the usual symptoms of stone. The urine alkaline, containing pus and blood corpuscles, and crystals of triple phosphate. Said that ever since her last confinement, seven years ago, she had been subject to pains in the left side of the lower part of the body, which were sometimes very severe. During the last year she had observed frequent "settling in the water, of red colour, with pieces of flesh." For the last few months only had experienced pain in passing urine. She said also that she had occasionally voided pieces of chalky substance, and once something much like a tooth. The sound came in contact with a foreign body, which was judged to be a stone. I accordingly proceeded to dilate the urethra in the manner above described. After twenty-four hours a small pair of lithotomy forceps were introduced, and soon seized a foreign body, which broke; a portion coming away in the forceps proved to be a tooth, like a bicuspid, in a socket of bone. I subsequently seized a larger mass, and having discovered it to be free, broke it with the forceps, and extracted several fragments of bone, teeth, and hair. She recovered quickly, and in a fortnight returned home, stating that she was quite well,

though there was still pus in the urine. The bone contained the usual corpuscles. The hairs, of a reddish-brown hue, were mixed up with the bone and included in it, as if the bone had been formed round them; possibly they may have become insinuated into the smaller orifices of the bone which they occupied. The teeth were like bicuspids and molars; the former with bent, the latter with imperfect fangs, and more or less completely enclosed in the bone. They were not arranged in a natural order, nor did the bone present at all the appearance of of a maxilla. The fragments are preserved in the museum of the University of Cambridge.

After several communications with Mr. Wright, I went to Chatteris, on March 23rd, 1854, to extract further accumulations from the bladder. I learned that soon after her return home she began to pass from the urethra pieces of bone, teeth, and masses like chalk. One of the latter, which was shown me, weighed a drachm and a half, and measured nearly two inches in its smallest circumference; it was of irregular shape, quite smooth, with a pinkish exterior. Cutting into it, we found it to consist of an outer friable earthy crust, enclosing a fragment of bone with teeth projecting from it. The woman had lately suffered a great deal of pain, and was much thinned. Mr. Wright had succeeded in dilating the urethra by means of the catgut bougies; so that I had little difficulty in introducing my finger into the bladder. Directed to the left side, it entered a sac communicating with the bladder by a circular opening just large enough to admit the finger, having a soft defined edge. In this sac I could feel a large rough stone. With some difficulty I passed the forceps through the bladder into the sac and grasped the stone. It broke, and repeated introduction of the forceps was necessary to clear the fragments from the bladder. Then the finger found a quantity of the broken stone in the sac, which I contrived, with a great deal of trouble, to bring away by means of the scoop. At length I was satisfied that the sac and bladder were emptied, and washed them out thoroughly with water by means of a syringe. The lining of the sac appeared to be smooth and soft, but uneven, not unlike that of a bladder with rugæ. She recovered without an unfavourable symptom, soon regained the power of retaining her urine, and has remained quite free from any disorder of the bladder. On Sept. 25th, 1855, she was delivered of a very fine child.

There were a great quantity of hairs in this stone, especially in one portion, which had probably formed the centre; but no bone or teeth. Mr. Warner ("Philosophical Transactions," vol. xlvii) and Sir Benjamin Brodie each met with a very similar case; and the most probable explanation of them is afforded by the supposition that one of those ovarian cysts which are

known not unfrequently to have bone, teeth, and hair growing from their walls, had ulcerated and discharged its contents into the bladder; that phosphatic deposit from the urine upon some hair remaining in the cyst formed the stone last removed; and that the clearing of the cyst on that occasion led to the cure. This view is confirmed by the dissection of another case by Dr. Phillips, given in the ninth volume of the "Medico-Chirurgical Transactions." There was a tumour of the ovary, containing cream-like substance and a quantity of hair, also a tooth attached to its wall; and "the bladder was distended with a substance similar to that contained in the ovarian tumour. Here, also, was discovered another large tuft of hair." I presume these contents had passed from the ovarian tumour into the bladder through some ulcerated communication.

The origin of the hairs which have in a few cases been observed to pass from the urinary passages of the male is somewhat more obscure. There are so many sources of error that it is first necessary to substantiate the fact with great care. Dr. Henry ("Medico-Chirurgical Transactions," vol. x.) satisfied himself, by the most careful investigation, that a quantity of short hairs, which a middle-aged gentleman observed in his urine, had their origin from some of the urinary passages. Sir Benj. Brodie also attended a gentleman who laboured under calculus of the bladder and disease of the kidneys, in whose urine he every now and then detected some very minute hairs, which he suspected to have been of renal origin. Two years ago I had occasion to remove from the perineum of a man, aged forty, one stone weighing five drachms, quite smooth, and composed apparently of lithate of ammonia, investing a soft putty-like nucleus; also several other smaller stones, made up of phosphate of lime and a quantity of short fine hairs, which were most numerous in the interior of the calculi. I could discover no hairs in the larger stone. The sac in which they were contained had an external fistulous opening, communicated with the urethra just in front of the prostate, and had a soft mucous lining. I examined the latter carefully, but could discover no hairs growing from it. During his convalescence, I repeatedly found short hairs in the urine which passed through the fistulous tract; whereas the urine taken from the bladder by a catheter, which I introduced several times for the purpose of this investigation, did not appear to contain any, or so few that they might have been accidentally missed. I concluded, therefore, that they had their origin in the fistulous tract. This man had been lithotomized by Mr. Okes, sen., when he was four years old; and a second time, a year afterwards, by Mr. Okes, jun. In the first instance, a cystic oxide calculus weighing four drachms, in the second, a fusible calculus weighing two

scruples, had been removed. He recovered quickly each time; but was "loose-watered" after the last operation, rendering it necessary to wear an instrument for the purpose of retaining the urine. The fistula had originated in an injury to the urethra by a sprain, causing urinary abscess ten years previously; and he had several times passed calculi through it. In the case related by Mr. Paget, of Leicester ("Medico-Chirurgical Transactions," vol. xxxiii.), where a ring of lithic acid, with a fine hair in its axis, was removed through the persistent urachus, it is probable, as he surmises, that the hair was one of the pubic hairs, which had found its way through the umbilical opening.—*Lancet, July* 30, 1864, *p.* 114.

56.—ON THE TREATMENT OF STRICTURES OF THE URETHRA.

By Barnard Holt, Esq., Senior Surgeon to the Westminster Hospital.

Mr. S., an officer in the navy, consulted me, by the advice of Mr. Wilson, of St. Leonard's, for an obstinate stricture of the urethra, situated in its spongy portion, about three inches from the meatus. Mr. S. attributed his stricture to an injury, attended by profuse hemorrhage; for it was shortly afterwards that he noticed a diminution in the stream of urine, which became rapidly worse, and eventually could only be passed guttatim. Various attempts had been made previously to my seeing him to introduce a catheter, but without success; and the surgeon under whose care he then was, failing to pass the catheter, *blistered* the upper part of both *thighs*, the blisters being kept open for some time, but of course, without the slightest benefit. Otherwise a perfectly healthy person he now suffered from great frequency of micturition and distress from violent straining. Upon examination, I found it quite impracticable to pass any instrument, indeed not even a fine probe, through the impediment. In the following week he came to London, and, after a very prolonged trial, I succeeded in passing a ½ No. 1 catheter through the stricture. This was retained in the hope that the contraction might yield and admit a larger size; but the pain it occasioned was so great as to compel him to remove it before my second visit. Seeing it would be quite useless to persevere with that method, he was subsequently placed under the influence of chloroform, when, after great difficulty, the dilator was pressed through, and the stricture was immediately split with a No. 9 tube, the urethra being preternaturally small, and not admitting a larger size. The quinine-and-opium was administered, and a few hours afterwards the urine was removed with a No. 8 catheter, which

passed freely into the bladder. This gentleman never had an unfavourable symptom of any kind, and he at once passed his water without difficulty. The after-treatment was continued, and he has now rejoined his ship, micturating naturally both as to stream and frequency, the urethra admitting a No. 8 without difficulty.

J. R., a policeman, was sent by Sir John Fisher into the Westminster Hospital, to be under my care. His case was in every respect similar to the above. Without the aid of chloroform I could not pass the smallest probe, but with the assistance of that agent I succeeded (but only by great perseverance) in introducing the smallest dilator, and rupturing the obstruction with the No. 10 tube. This patient never had an unfavourable symptom of any kind, and described himself on the following day as passing his urine as well as he ever remembered. The No. 10 was introduced three or four times afterwards, when he returned to his duty, with directions to have an instrument of the same size passed by the divisional surgeon at increasing intervals.

Mr. W., a commercial traveller, was sent to me by Mr. Reeves, of Carlisle, in consequence of an obstinate stricture of the urethra, complicated with fistulæ-in-perineo. He had suffered more or less from stricture for some years, which, in 1860, resulted in an abscess in the perineum and the establishment of a fistulous aperture, through which the greater part of the urine flowed. At this time he consulted a well-known surgeon in London, but, from pressure of business, he was unable to continue under his care. The stricture gradually became worse, and in December, 1863, another abscess formed behind the former one, leaving another fistula, so that at the time of my seeing him a large part of the urine was ejected through these two openings. Upon examination, a tight unyielding stricture was detected at the bulb, which resisted the first three attempts to pass even the smallest catheter. Upon the fourth trial, the catheter reached the bladder, and was retained for two hours, the pain being too great to permit its remaining longer. Subsequently the dilator was passed fairly through the obstruction into the bladder, and the stricture, which was very dense, was ruptured with the No. 10 tube. Although he had previously suffered greatly when the catheter was passed, he described the pain of the operation by rupture as trifling. The No. 10 catheter was passed directly afterwards, and the urine removed. Quinine-and-opium was administered, and the urine was again drawn off in the evening. This patient never had a bad symptom of any kind whatever. The No. 10 bougie was passed at the prescribed intervals, and he now (three weeks after the operation) voids his urine in a full stream,

the fistulæ have nearly healed; his general health also is much improved.

Dr. Hamilton Roe requested me to undertake the case of Mr. B., a member of our own profession, who had long suffered from stricture. Mr. B. informed me that for twelve years he had suffered from the effects of stricture, and that twelve months since he injured his perineum, which greatly increased his difficulty in micturition, which had now become so frequent as to destroy his rest, and thus materially influence his health. His urine contained a large quantity of ropy mucus, and was ammoniacal. With great difficulty I succeeded in passing a No. 2 catheter; but on his second visit I found it was impracticable to introduce any catheter at all. I therefore requested him to take lodgings near me, for the purpose of having my operation performed. In the following week, after a prolonged trial, I succeeded in passing a No. 1 gum-elastic catheter, which was retained for twelve hours. The dilator was then introduced, and the strictures—one at the bulb and the other at the membranous portion of the urethra—were at once enlarged by the passage of the No. 12 tube. Although he had previously experienced considerable pain when the passage of the catheters was attempted, he did not evince the slightest manifestation of pain during the operation, which he described as of the most trifling character. The No. 12 catheter was now passed, and the urine removed; quinine-and-opium was taken; and in the evening the urine was withdrawn by the catheter. This gentleman never had a bad symptom of any kind whatever; he was out on the following day; and a No. 13 bougie can be introduced without the least difficulty. He now passes the night without requiring to relieve himself, and only micturates three or four times during the day.

Colonel —— consulted me in July, 1863, having suffered from stricture for twenty-five years, for many of which he had been under treatment by the ordinary dilating process, without, however, deriving any considerable advantage, no size larger than a No. 5 having been attained. He is now obliged to strain violently to expel his urine, which requires to be very frequently passed both day and night, and the urgency is generally so great that he has hardly time to reach a convenience before a small quantity will escape. Upon my first examination I found it impracticable to pass any catheter; I, however, eventually succeeded in passing a No. 2, which with difficulty was repeated upon three or four occasions; after which his military duties prevented his regular attendance, and I lost sight of him for some months. At the commencement of the present year he again consulted me, being then worse than ever. After great difficulty I succeeded in passing No. 2, and on the following

day introduced the dilator and split the stricture with the No. 12 tube: the urethra was, however, so long that I did not get the full power of the instrument, and consequently could only immediately afterwards pass a No. 8. The pain was very trifling, and the hemorrhage very slight. The quinine-and-opium was prescribed, and in the evening the urine was drawn off. This gentleman never had, beyond a slight scalding, the least inconvenience whatever. He was out on the following day; and now (rather more than two months from the operation) I can pass No. 13 with ease; his irritability has entirely ceased; he passes the whole night without requiring to make water, which he now accomplishes without straining, and he can eject it a considerable distance from his body.

Colonel —— was sent to me by Dr. M'Ewen, of Chester, having been the subject of stricture for more than twenty-five years, during which time he had been under the care of various surgeons: at one time residing in the house of a surgeon in London for his more effectual treatment; and at another time was long subjected to the treatment of dilatation by retention of a catheter in the bladder. His stricture, however, invariably returned; and at the time of his consulting me he could pass a No. 5 catheter, but its introduction produced so much irritation that it was always followed by retention of urine and more or less irritability, which continued until he was compelled to introduce his catheter again. It was under these circumstances that he consulted me, hoping that by my treatment his urethra might be so enlarged as to prevent the irritation caused by the passage of the catheter. In answer to my inquiry what would be the result if he did not pass a catheter for some weeks, he informed me that the urethra then became so contracted that he had great difficulty in passing any instrument at all. Having taken lodgings close to my house, I passed the dilator and split the stricture with the No. 12 tube, and immediately removed the urine. In the evening the catheter was again introduced; but the following morning, although he had passed a perfectly quiet night, after returning from a cold water-closet, he had a rigor, which however did not last more than five minutes, but which for two or three days made him feel very ill, and rather interrupted the ordinary treatment. Beyond the rigor he never suffered any inconvenience; the passage of the catheter did not create any irritation, and was not followed by the slightest annoyance; but, on the contrary, his irritation subsided, and his urine was voided in a much more voluminous stream. In a fortnight he returned to the country; and in a letter I shortly afterwards received he stated: "I yesterday morning passed the instrument with more ease than I ever did before, and with no bad consequences afterwards. I sleep well through the

night, being seldom obliged to get out of bed till five or six o'clock in the morning. If you at any time wish to refer a timid man to one who has experienced your treatment, you have perfect liberty to send him to me."

Mr. C., an officer in the Hussars, came from India for the purpose of having my operation performed. He stated that for several years he had suffered from stricture, which had latterly become so bad as to require him to obtain leave of absence for the purpose of having it remedied. At present he is suffering from irritability of the bladder, frequent micturition, great straining, and the urine occasionally only passing guttatim. On examination of the urethra, I ascertained he had two strictures, through which a No. 1 catheter could with difficulty be passed. Having taken lodgings in my neighbourhood, on the second day from his first consulting me, I succeeded in passing No. 1 into the bladder; and having retained it for two hours, it was removed, and the dilator substituted, the urethra being immediately enlarged with the No. 12 tube. As in the former cases, the urine was withdrawn, both at the time of the operation and and subsequently in the evening, by the No. 11 catheter. Quinine-and-opium was prescribed. This gentleman never had a bad symptom of any kind whatsoever; he was out on the following day; and he now passes his urine in a full stream without the least difficulty or irritability. A No. 11 bougie can be passed with the greatest ease.

Dr. ——, a medical practitioner in Ireland, consulted me in consequence of stricture, the symptoms of which very much resembled the preceding case—viz., frequent micturition, great straining, inability to propel the urine from the body, broken rest, and general debility. Upon his first visit, I succeeded in passing a No. 2, which was held with great tenacity, so as to require slight force to remove it. On the following day I passed the dilator, and enlarged the urethra with the No. 10 tube, afterwards removing the urine with the No. 10 catheter, and again passing it in the evening. He never had a bad symptom of any kind whatsoever; he went out the same afternoon, and in a fortnight returned to Ireland, passing his urine as freely as he ever remembered, a No. 11 bougie slipping into the bladder with great ease. I have lately had a letter from this gentleman, expressing his thanks for the great relief that had been afforded him, as well as an assurance that he will now perform my operation upon any cases of stricture that may come under his care.

The above cases have been but very briefly described. I have not considered it necessary to enter into every detail as to the exact situation or number of the strictures, &c., but have contented myself with recording them as they have occurred; and

did I not fear to occupy too much of the space of the *Lancet*, I could describe many more—some more severe, some less,—in all of which the same result has been attained.

In conclusion, I would venture to remark that while it is perfectly optional with any surgeon *acquainted with my method of treatment* to employ it or not, as he sees fit, it is not desirable that practitioners who have never *either read my observations or seen the operation performed* should endeavour to persuade their patients not to submit to it, upon the plea that its performance *must* be attended with serious results. In two of the above cases the patients had been strongly urged not to have my operation performed, but as their surgeons had nothing to offer but the continued introduction of bougies (which were found to be quite useless), they preferred exercising their own common sense, and be subjected to a treatment which immediately relieved them from the continued torture they had previously undergone. In each of these cases the patient declared the pain of the operation was nothing as compared with what they had suffered from the passage of bougies. I again repeat, if surgeons will only ensure the dilator being passed *fairly through the strictures*, and not *through the side of the urethra*, as has been done, into the bladder, that the operation may be performed with as great safety as the most trifling operation in surgery. The pain is insignificant, and the urethra is immediately enlarged to its natural size.—*Lancet, Aug.* 20, 1864, *p.* 206.

57.—ON THE TREATMENT OF ACUTE ORCHITIS BY PUNCTURING THE TESTICLE.

By Henry Smith, Esq., Assistant-Surgeon to King's College Hospital.

In July, 1863, a young man presented himself amongst the out-patients of King's College Hospital with gonorrhœal orchitis in a very acute form. The pain was unusually severe; and, on examining the organ, it appeared to me that suppuration had taken place, the sense of fluctuation being, as I thought, distinct. With a view of evacuating the pus, I took a bistoury, and made a free and deep incision into the supposed abscess; but, to my astonishment and dismay, not a drop of matter escaped—only a little serum and blood. The tubes, however, of the testicle shot out, as it were, from the wound, forming a protrusion the size of a nut. Some pressure was applied by means of strips of plaster, and the patient was sent away.

Two days afterwards the man presented himself; but in a very different condition. He was quite free from pain, all the redness and most of the swelling had disappeared, and, on

taking off the strapping, it was found that the protrusion of the tubes of the testis no longer existed.

This case, which was somewhat annoying to me at the time, suggested some serious reflections in reference to the speedy relief which had resulted from a practice which in reality was the effect of an error of diagnosis on my part. Was the sudden relief here a mere accident?—or, if not, to what could it be due? The quantity of serum and blood abstracted was so small that the cessation of pain and diminution of swelling could hardly be due to this cause; but it struck me forcibly that the free division of the fibrous tissue enveloping the body of the testis, and the consequent removal of tension from the organ, was the secret of the success, provided it was not a mere accident.

Influenced by this reasoning, and by the result of this case, I determined to try the effect of puncturing the testis in similar cases; and in the next case of acute orchitis which presented, I made a deep and free incision with a sharp narrow bistoury, emitting about half a teaspoonful of serum and several drachms of blood; and no other treatment beyond a little of the common aperient mixture was supplied. The result here was as successful as in the former; and as cases presented themselves, I adopted the same plan of treatment, reserving it, however, especially to those instances where the swelling and pain were very great. After the trial in a few cases, it was found that the success attending this practice was such as to lead me to adopt it as the usual treatment of acute orchitis; and during the last twelve months I have probably treated in this way upwards of twenty cases, with results that have astonished both myself and those numerous pupils who have witnessed the practice.

In nearly every case so treated—and I have purposely selected the most acute— the patient has experienced the most striking relief before he has left the out-patients' room; and on the next visit, forty-eight hours afterwards, the contrast presented is so remarkable that the superiority of this plan over the old-fashioned modes of treatment is at once impressed forcibly upon the minds of those even who would naturally be prejudiced against so apparently heroic a treatment. The speedy subsidence of all the acute symptoms is due entirely to the puncture of the swollen and inflamed organ, for I have taken especial care not to prescribe anything else except a little of the common white mixture, or perhaps the use of the ordinary lead lotion, and this chiefly to please the patient.

We all know what a terrible ordeal of violent remedies a patient with acute inflammation of the testicle has to undergo. In the first place, he is obliged to lie in bed for several days; a large number of leeches or the constant application of ice are

necessary to relieve the pain; and at the same time the unfortunate wretch is compelled to undergo the process of severe purging and continued nausea, by repeated doses of salts and tartar emetic, before any decided mitigation of his symptoms ensues; and two or three days mostly elapse before he recovers from the depressing influences of these several remedies. Lastly, the unfortunate organ has to be submitted to the tender mercies of a dresser, who, however skilful he may he, cannot help putting the owner of it to severe and prolonged torture whilst he is obeying the injunctions of his superior to "strap testicle."

Now for all this I venture to submit the plan now proposed, and one which I should call a "new" one; but it is venturing on dangerous ground to call anything new now-a-days. Moreover, my old assistant and our present house-surgeon, Mr. Richmond, informs me that when he was in Paris two years ago he saw the same method of treatment adopted there; but I never heard of it before I resorted to it, and the practice in my hands was entirely due to the accident I have related above.

Of course several of my friends and pupils have urged objections against this plan of treatment, and suggested serious results, in the form of suppuration of the organ, impairment of its function, hernia testis, and fistulous sinuses; but none of these have I witnessed. It is very natural and proper to make these objections, for we have always carefully avoided the possibility of a puncture of the testicle when using a trocar for paracentesis of the tunica vaginalis, and, indeed, I have witnessed violent suppuration of the testis speedily ensue from this accident; but it must be borne in mind that wounding of a healthy testicle with a large and blunt instrument like a trocar is a totally different thing from a careful incision made into the highly inflamed organ by a thin sharp blade.

The only inconvenient result I have witnessed from this treatment was the following:—an incision was made into the testicle of a middle-aged man, with the usual relief, but in a few days the scrotum began to swell, great pain was experienced, and the man was taken into the hospital. The objectors to the mode of treatment suggested all sorts of disasters, in the shape of suppuration of the testicle, &c., but on careful examination it was ascertained that the swelling consisted of a large and rapid effusion of fluid into the tunica vaginalis, which was at once evacuated, with speedy relief to the patient. In another instance I made the incision much deeper than was necessary, carrying the point of the knife nearly to the back of the organ. As much as ten ounces of blood were lost, but the testis was violently inflamed and swollen, and the only effect of the accident was to make the patient somewhat faint, but at the same time to give more speedy and effectual relief than usual.

This circumstance may lead one to the belief that the relief is due solely to the escape of blood from the puncture; but this view is inconsistent with the fact that great relief is given when only a few drachms of blood, mixed with serum, are discharged. Doubtless the direct withdrawal of blood from the highly inflamed testicle is of service, but my own view of the matter is, that the relief is in a great measure due to the withdrawal of the tension from the body of the testis by free division of the tunica albuginea.

Whatever may be the precise manner in which the good results are produced, there is no doubt of the fact, and I would earnestly suggest to surgeons, especially to my colleagues, the assistant-surgeons of the hospitals, who treat the majority of cases of orchitis, to adopt the plan proposed, rather than be submitting their patients in routine way to all the horrors of the middle passage, from tartar emetic to strapping of the testis.

Since the above was written I have seen one of my old pupils who has been spending the last six months in the Paris hospitals, and he informs me that the ordinary practice at the Hôpital de Midi in cases of acute orchitis is to make a puncture in several places with a lancet; the instrument is not carried into the body of the testicle, but simply through the tunica albuginea. He describes the plan of treatment as most successful.—*Lancet, Aug.* 6, 1864, *p.* 149.

DISEASES OF THE SKIN.

58.—ON ALOPECIA, OR FALLING OFF OF THE HAIR.

By Dr. J. Mill Frodsham, Physician to St. John's Hospital for Diseases of the Skin, and Senior Physician to the Farringdon General Dispensary.

In considering the treatment of alopecia we must remember that with the exception of the senile, which is incurable, the organs that secrete the hair are merely in a state of atony, and not destroyed; and, therefore, the main feature of the treatment must be to excite capillary circulation of the scalp, and thereby alter the vitality of the hair follicles. When the hair falls prematurely, as is especially seen in women, great care should be taken to find out the causes, among which may be enumerated: doing the hair too tightly, constantly in the same way, seldom undoing it, allowing the skin to become obstructed by the constant use of resinous pomades, &c.; also from want of æration, as constantly keeping the head covered. That resulting from accouchement and fevers has the additional com-

plication of the rancid perspiration and local irritation of the pillow. These causes will themselves naturally suggest the treatment, which must be conducted on general principles, not neglecting local treatment. Much benefiit will result from cold bathing the head, altering the mode of dressing the hair, allowing it to hang loose about the body. When the skin is unable to have free power of secretion from the too abundant use of pomades, &c., the head should be well washed with the yolk of an egg, or borax in almond emulsion, afterwards carefully rinsing with warm water, and to apply the following lotion, viz., spirit ammon. aromat., tinct. canth., glycerin, aa. ℥jss., aquæ rosæ, ℥vi. M.

A useful form of stimulating application is made by adding equal parts of the tinct. canth. of the P.D., and scented lard of the lin. canth. of the P.D.

In the form I denominated alopecia circumscripta, we require a purely stimulating treatment locally. The parts should be first well cleansed with benzole (Startin), and after the liq. vesicatorius of Messrs. Bullin and Birt applied with a hard, short brush, or the tinct. iodinii, twice the strength of the P. L. When the effects of these have passed away, one of the following ointments may be used: sulphur, ℥ss; hyd. nit.-oxyd, gr. v.; hyd. ammon.-chlor., gr. vj; combined with a few drops of creasote, and one ounce of lard. The internal remedies most to be relied upon are the mineral acids. A favourite form of mine is ℞. Acidi hydrochl. dil. ℥iss: acidi nitrici dil. ℥i.; æth. chloric. ℥i.; inf. gentian.-comp. ℥viij. M. Fiat mist. cujus sumantur cochl. magn. ij. ter die.

I may here state the curative effects of these agents greatly depend upon their mode of application, which should be as follows: the hair, previously well washed, should be parted in straight lines, and the ointments or lotions applied by means of a hard brush to the skin, so freed until the whole of the scalp has been thoroughly gone over. In syphilitic alopecia the best internal treatment is the biniodide of mercury in small doses (potass. iodidi q. ij., liq. hyd. bichloridi ℥j. aquæ ℥i), and the local application at first should be some of the mercurial ointments before mentioned, and afterwards, if necessary, the blistering fluid of Bullen and Birt. In the alopecia resulting from chronic skin eruption—as eczema, impetigo, and pityriasis—our first object must be to cure the local disease. For this purpose an ointment, composed of the pyrolignous oil of juniper (huile de cade), sulphur ointments, zinc, and creasote lotions, should be used. Arsenious acid, with or without iron in the dose of $\frac{1}{30}$ of a grain, is the best internal remedy for these forms. It requires to be taken for at least a month, and it is, therefore well to prescribe it in ℥j. doses. If the eczema or

pityriasis is confined to one spot, and resists treatment, recourse should be had to local blisterings.

In the case of tinea favosa, tinea tonsurans, the bulb of the hair becomes modified from a parasite. It is most important to cure the local disease as quickly as possible, as in this the alopecia is permanent and extensive in proportion to its severity. In favus all internal remedies are useless and inconsistent, epilation, lotions of bichloride of mercury, and sulphur and tar ointments are to be used. This disease will seldom come under your notice, but tinea tonsurans very frequently. To cure it we must frequently have recourse to epilation and afterwards to the blistering fluid, or the tinct. of iodine, or bichloride of mercury lotion, or ointment composed of sulphur and creasote. By these means I have often cured the most inveterate forms. In pityriasis the creasote ointment and zinc lotions are the best treatment.

In epilation, care should be taken to have a proper pair of pincers, to hold the hand low down, and epilate in the natural direction of the hair, a proceeding which in this way causes little or no pain.

In all these forms the head should never be shaved. If required, the hair may be cut short around the diseased spots to admit of the more efficient application of the remedies prescribed.—*Medical Mirror, July* 1864, *p.* 411.

59.—A CASE OF ALOPECIA AREATA TREATED BY CARBOLIC ACID.

By Dr. JAMES WATSON, Edinburgh.

[The patient was of feeble constitution, and Dr. Watson ordered her citrate of iron and quinine, cod-liver oil, wine, and good nourishing diet.]

As the scalp was nearly covered with a crust, the result of the free use of blistering fluid, I got the head poulticed for two or three days. When the crust was removed the head had a somewhat œdematous look, otherwise it had all the appearance of a head bald from age. There were several patches of the scalp slightly reddened. I now began the application of carbolic acid dissolved in glycerine, in the proportion of one drachm of the acid to three ounces of glycerine. The lotion was applied night and morning; and, to prevent it evaporating, a cap made of oil-silk was constantly worn. The head was washed morning and evening, before the lotion was applied, with black soap and water.

Result of Treatment.—Under the constitutional treatment patient soon began to improve in appearance, and her general

aspect assumed a healthier and happier character. The cheeks, which were formerly sunk, became full and plump, and the lips, once white and blanched, red and life-like. This change, however, was not immediate, but the result of eight or ten weeks' treatment.

The local treatment by carbolic acid was commenced about the 12th day of January. The first result observed was the disappearance of the œdema of the scalp, and a freedom from the uneasiness in the head, which succeeded the tic douloureux, and continued to annoy the patient till the lotion had been used for about two weeks. It was next noticed that the slightly crimson patches of scalp became pale, and the whole scalp white. The few hairs scattered over the scalp had now fallen out; and from ear to ear, and from the brow to the posterior aspect of the neck, there was not a single hair on the head. For a month after the lotion was used there was a slight furfuraceous desquamation of the scalp. At the end of six weeks from the commencement of the local treatment, the head was still quite bare, and it was only by the aid of a magnifying glass that it was possible to recognise openings in the skin which communicated with the fine canals leading to the hair bulbs, and distinguished this head from the baldness due to age. At the end of February, a crop of very fine, silken, white hair made its appearance over the whole scalp. It was perfectly free from pigment, resembling, yet differing from the hair of new-born children. At the end of March, the hair was about an inch long over many parts of the head, the white character of which gave to the otherwise young appearance of the patient a most peculiar aspect. The lotion was continued morning and evening till the end of June, since which date the local treatment has consisted solely in washing the head, night and morning, with black soap and water, and the free use of a brush to the surface of the head three or four times in the course of the day.

Patient left the hospital on the 3rd day of August, 1864, with the scalp in perfect health, and with a covering of fine, glossy, silken hair, now very slightly tinged yellow, and measuring from one and a half to two inches long.

Remarks.—This case is interesting, inasmuch as it is, I believe, the first treated by carbolic acid. It is worthy of note that while the hair, which was very plentiful, fell out, and in the course of fourteen days left the scalp entirely bare, the patient had not suffered, as generally occurs in these cases, at or about the time from any acute fever or inflammatory attack. The alopecia areata, although so complete as far as the head was concerned, was confined to the scalp; the eyebrows, eyelashes, hair over the pubes and axillæ remain intact. Although in this case I dissolved the carbolic acid in glycerine, it may be some-

times preferable to dissolve it in acetic acid; and when glycerine is used as the solvent, it may occasionally be wise to make the lotion considerably stronger.—*Edinburgh Medical Journal, Sept. 1864, p. 236.*

60.—ON THE TREATMENT OF IMPETIGO CONTAGIOSA, OR PORRIGO.

By Dr. W. TILBURY FOX, Physician to St. John's Hospital for Diseases of the Skin, and to the Farringdon General Dispensary.

[Impetigo contagiosa is another name for the more familiar porrigo or tinea, due to the presence of the achorion fungus.]

Clinically speaking, we find, in treating the disease—

1. That many cases get well if left alone; but this is a tedious affair.

2. That a more efficacious plan of treatment is that in which the internal administration of cod-liver oil and iron is combined with the local use of soothing applications—*ex.*, zinc ointment.

3. That a still more successful plan is to give cod-liver oil and iodide of potassium internally, and to apply externally sulphur ointment—a plan of treatment recommended and sanctioned by my colleagues.

I think we may safely conclude that the latter is the "basis" of successful treatment. It must be remembered that the disease occurs among the lower orders, and especially in delicate and strumous subjects; that it also follows vaccination, and is eminently contagious. Nature is able sometimes to carry on the suppurative and desiccative processes quietly, and to overcome further mischief by the establishment of convalescence; but there evidently is a low state of vital power, which antagonises this good effect, and leads to ulceration; hence we must always enjoin a tonic plan of treatment. At the outset, we may have a good deal of febrile action; this must be kept within due bounds by the ordinary means.

The local treatment is most important. The chief point is to remove all scabs (pediculi, according to my own observations, are rare). The scabs must be removed, and the medicaments applied to the subjacent sore surfaces. Sulphur ointment is the best. Solution of nitrate of silver, the solid salt itself, zinc ointment, iodide of potassium ointment, acetate of lead lotion, or benzoin, may also be used. Sulphur has probably no very special charmed action in this disease, any more than in other cases—*ex.*, lichen, psoriasis, pityriasis, &c.

We must be careful to prevent all methods and modes of con-

tagion; but, with the exercise of the greatest care, the disease will in all probability spread from one to several members of the same family.—*British Med. Journal, June* 4, 1864, *p.* 608.

61.—ON THE TREATMENT OF PRURIGO.

By Dr. DUCHESNE-DUPARC.

Prurigo is not a disease which directly compromises the existence, but its obstinacy, its tendency to relapse, and the insupportable annoyance which it occasions, render it one which often causes much trouble and anxiety to the practitioner. Prurigo especially affects the nervous and the suffering. It has been supposed to be contagious, but this is certainly not the case; it may be complicated with itch, but when simple, no acarus or any other animalcule is present. What distinguishes the two diseases farther is, that the anatomical character of prurigo is the papule; of itch, the vesicle. Sometimes, no doubt, the diagnosis may be different. Thus, in chronic prurigo, some papules may present at their summit a small vesicle, and on the other hand, the vesicles of the itch may rest upon a papuliform induration; but even here the doubt should not be frequent, and should not last long, both because such cases are rare, and because the papules of prurigo occupy the back of the limbs and the posterior surface of the trunk, just the contrary of what is noticed in itch. The pruritus again affords light to the practitioner who is in doubt. This is the essential symptom of prurigo, and is much more marked and persistent than that which is met with in itch. Besides, the small lamellated crusts which follow the vesicles of scabies, could not be confounded with the black concretions formed in prurigo by drops of dried-up blood. The violent itching of prurigo may be simulated around the anus by ascarides in the rectum, by hemorrhoids, by slight inflammation of the rectum; and, in the case of the genital organs, by pediculi pubis, or eczema of the scrotum or vulva.

In a practical point of view there are only three forms of prurigo—the recent, the chronic, and that which was called by Alibert the latent, where papules cannot be seen by the naked eye. At present we only speak of the treatment of this disease.

If prurigo is recent, the antiphlogistic treatment affords the best results. If the subject is young, sanguine, and plethoric, and if the eruption occupies large surfaces, Dr. Duchesne-Duparc commences by bleeding at the arm, or applying leeches to the anus; he then prescribes a milk and vegetable diet, cooling drinks, especially lemonade, prepared with nitric or sulphuric acid, and sweetened with syrup. He lays much stress upon bran

baths, prepared by boiling four pounds of bran for half an hour in a sufficiency of water, and mixing it with the water of the bath. Frequent lotions are made from time to time upon the affected parts with decoction of lettuce, dulcamara, or poppy; or the lotions are replaced by prolonged inunctions made with oil of hyoscyamus, opiate cerate, or the following preparation :—chloroform 75 grains, glycerine 300 grains. This treatment, combined with mild purgatives, often leads to a sudden and complete cure.

But if prurigo be, as is usually the case, of old standing, we must trust chiefly to external agents, though still insisting upon a suitable regimen and the use of acid drinks. The alkalies here form excellent topical applications; the salts of potash and soda, in sufficiently diluted solutions, both favour the resolution of the papules and calm the itching. With the same object we may have recourse to simple or aromatic fumigations, vapour baths, sometimes even to corrosive sublimate. But the topical application to which Dr. Duchesne-Duparc gives the preference is tar, in suspension or incorporated with lard and united with opium. Lotions and baths of tar-water should be frequently renewed. The following formula gives excellent results :—tar 60 grains, gummy extract of opium 15 grains, lard 1 ounce. In the case of baths and lotions it is well to add a gelatinous substance (such as 2 pounds of glue to 200 quarts of water), because the papillæ parts are the most sensitive of the skin. Dr. Duchesne-Duparc has found that sulphurous preparations are only moderately useful in prurigo. They only do good when it is complicated with pityriasis or psoriasis. The most useful of the mineral waters are those which are alkaline, and contain a thick vegetable principle, such as the waters of Neris.

In prurigo pudendi, and in prurigo podicis, we must often have recourse to the application of prussic acid, sulphate or muriate of morphia, chloroform, &c. In some patients benefit is derived by the occasional use of astringents and antispasmodics; in others, slight and altogether superficial cauterizations do good. Nevertheless, though topical applications are very important, the necessity for internal remedies must not be overlooked, especially when the disease is of old standing. It is here that aconite is very useful. Many years ago, M. Cazenave derived great benefit from the use of this substance in papular cutaneous affections, and especially in prurigo. Considering prurigo as a neuralgia of the papillæ of the skin, having as an accessory character the appearance of papules, M. Cazenave had recourse to the simultaneous employment of alkaline baths, and the use of the following pills :—alcoholic extract of aconite, extract taraxacum, of each 15 grains. This to be divided into 40 pills, of which the patient took one or two night and morn-

ing. Dr. Duchesne-Duparc has made use of similar pills, but generally prefers the tincture to the extract of aconite; where the case is very obstinate the use of the arseniate of iron and emollient baths are often useful. The prolonged use of the bath is especially important. Dr. Duchesne-Duparc often directs them to be of two or three hours' duration, and to be repeated daily. If, while the patients are undergoing them, friction of the affected parts of the skin, or, still better an intelligent shampooing, be practised, a very beneficial modification of the skin will be brought about.—*Journal de Médecine et de Chirurgie Pratiques.*—*Edinburgh Medical Journal, Aug.* 1864, *p.* 165.

62.—TREATMENT OF ITCH AT ST. LOUIS.

By Dr. HARDY.

The treatment employed by Dr. Hardy consists, first, in friction for half-an-hour of the whole body, except the head, by means of black soap, and which is continued by the patient himself during an hour while in a tepid bath. When he leaves the bath he is submitted to a rapid and general friction with the following ointment:—Lard 64, sulphur 20, subcarbonate of potass and water of each 8 parts. The patient then dresses himself without wiping off the ointment, as the contact of this is necessary for the destruction of any remaining acari, and of any that might remain in the garments. Of 37,429 persons so treated in 1852–1862, only 535 required a second application.—*Gaz. des. Hop.*, No. 67.—*Medical Times and Gazette, June* 18, 1864, *p.* 665.

63.—TREATMENT OF PSORIASIS.

The Union Médicale publishes a treatment for psora, or to use a less scientific word, itch, which has been adopted by Dr. Vingtrinier in the prisons of Rouen, and which brings about a cure in the space of two hours. You are aware that M. Jadelot, of the Hôpital des Enfantes Malades, some years past, proposed a new method of treating the itch, which was by employing a bath prepared by adding to twenty gallons of water heated to about ninety-eight of Fahrenheit's thermometer, four or five ounces of the sulphuret of potash. This bath was to be used every day for five or ten days successively, according to the severity of the disease, the patient remaining in it nearly an hour each time. This plan has been much adopted in French hospitals. It has the advantage of being less offensive than the common method, because the linen is not soiled with ointment, no sulphureous exhalation takes place

from the patient, and the general habit is not impaired. Fumigation has also been employed in Paris with success, in the cure of psoriasis, and this mode many physicians prefer to all others, particularly in very bad cases. The fumigation is produced by throwing half an ounce of sulphur mixed with two drachms of nitre into a warming-pan of hot coals, which is to be employed in the usual manner of warming a bed. The patient is then to strip naked and get under the clothes, which are to be closely tucked round his neck and shoulders so as to prevent as much as possible the escape of gas. The process is continued for about seven nights, and according to its inventor, Dr. Gale, even the worst cases may be cured in this way without any inconvenience to the patient, who will usually sleep sound. To arrive at a more rapid cure Dr. Vingtrinier proposes uniting the bath to general friction. He recommends: 1. Friction over the whole body with black soap during half an hour. 2. Simple tepid bath for the same lapse of time. 3. General friction with liquid sulphate of lime, leaving it to dry on the skin during a quarter of an hour. 4. Immersion for half an hour in a bath prepared by adding to every one thousand grammes of water one hundred of flowers of sulphur, and two hundred of quick lime. On evaporating, the liquid sulphate of lime leaves on the skin a thick deposit which penetrates into the furrows and destroys the acari and their eggs. This method of treatment has been followed in Belgium for two years past, with great success, and it is recommended to all on account of its simplicity, economy, and the certain cure it will produce.—*Dublin Medical Press, June* 22, 1864, *p.* 667.

64.—ON THE USE OF ARMORACIA IN ACNE ROSACEA.

By Thomas Foster Ker, Esq., Manchester.

Acne rosacea is a disease which comes under the cognizance of the medical man, that very frequently baffles his skill, and is less under the control of medicine than many other skin affections. Any suggestion, therefore, in regard to its treatment will be acceptable to the profession, inasmuch as the number of sufferers in society from this complaint is far greater than might be at first imagined. So much unhappiness is it productive of that I conceive it to be the duty of any practitioner who has been so fortunate as to rescue "one victim," whose case was deemed hopeless, to bring such case in some way before the notice of his professional brethren.

Having seen the fresh root of horseradish, Cochlearia armoracia (nat. ord., Brassicaceæ), used externally as a rubefacient

in catarrhal deafness and enlarged tonsils in the case of a patient suffering from a very obstinate form of acne rosacea, and to quickly disappear of itself with the advancing recovery of the patient's deafness and tonsillitis, my mind was at once impressed with the probable idea that the root would be found useful in other cases of the same character. I was thereby induced to make trial of it in several cases, and I have much pleasure in bearing witness to its remarkable success. Two ounces of the compound infusion of armoracia, with ten drops of compound spirit of ammonia, and a little syrup of ginger, made into a draught, to be taken night and morning; and a milk infusion of the fresh root to be used frequently as an application for the parts affected, and the avoidance of all stimulating liquors, with the occasional use of gentle aperients, will often prove the remedies appropriate to the treatment of this particular and obstinate disorder.

The following example, amongst other similar cases, illustrates the correctness of this account most strikingly :—

A clerical gentleman, a patient of mine, suffered particular annoyance from this disease for a period of five years. He had derived temporary advantage from the use of the solution of arsenic, four minims to be taken in porter three times a day. This plan always succeeded for a week or two ; but the pustules reappeared invariably at the end of that time. They at length presented so marked an appearance as almost to induce a suspicion of a syphilitic origin—clustered, very acuminated, and bearing a rosy inflamed base, occupying the apex of the nose, also a great portion of the right and left alæ. Both cheeks were patched with the acne as well. He is a tall and rather muscular person, with a sanguineo-nervous temperament. He had been very careful always of his diet, exercise, and abstained from stimulating liquors ; but for the last few years he had had much mental excitement, more than his wonted habit, and had been also exposed to heated apartments and hot fires, from the effects of which he began to look anxious and pallid. His tongue was furred ; his eyes were bloodshot ; there was general debility ; he became extremely impatient and irritable, though when quite well he was mild and enduring. His physical and mental prostration resulted in an attack of acne rosacea.

The case here stated was one of the worst I have seen, and was cured by armoracia only. This gentleman is now perfectly well, and progressed so favourably that I judged it unnecessary to order him change of air. This case alone affords a very striking and incontestable instance of the great efficacy of this simple remedy.—*Lancet, August* 13, 1864, *p.* 199.

65.—ON THE TREATMENT OF ECZEMA.

By Dr. T. McCall Anderson, Physician to the Dispensary for Skin Diseases, and to the Deaf and Dumb Institution, Glasgow.

[The following is a continuation of Dr. Anderson's lectures on this subject (see *Retrospect*, vol. 48, p. 144.)]

The preparations of *sulphur*, though not so generally useful as those of arsenic, are highly serviceable in the treatment of some cases of eczema, especially when the eruption occurs in persons of the lymphatic temperament, and when it is on the decline. When speaking of the administration of purgatives, I told you that the advantage which a sulphur purge possesses over a calomel one is, that it is eliminated in part by the skin, and exercises an alterative effect upon that structure. If, however, we wish to avail ourselves to the full extent of its alterative action, it is advisable to prescribe a course of one of the natural mineral waters which contain sulphur. Those of Harrogate and Moffat in this country, and of Enghien, Barèges, and Luchon on the continent have the greatest reputation in this respect; and, while some of these waters may be had from the Apothecary, it is always more judicious, when it can be effected, to send your patient to the spring itself; for he is thus certain to get the waters fresh and pure, and, away from home and the fatigues and anxieties of business, his body is at the same time invigorated and his mind refreshed.

Alkalies are not nearly so generally employed as the preparations of arsenic and sulphur in the treatment of eczema. They are most beneficial when the patient is much addicted to the use of stimulants, and when there is a tendency to acidity of the stomach and to the deposit of lithates in the urine, or to gout or rheumatism. The preparation most in vogue is aqua potassæ, which may be given, largely diluted with water, in doses of twenty minims thrice daily to an adult. The alkali which I am most in the habit of using, however, and which has not, I think, been tried hitherto in this country for such a purpose, is the sesquicarbonate of ammonia in doses gradually increasing from ten up to thirty or even forty grains thrice daily, care being taken that the preparation is fresh and of full strength. A dose of forty grains is often borne well by a patient whose stomach has been gradually accustomed to its reception, while a smaller dose often occasions vomiting in the case of those who have not been in the habit of taking it. Sometimes it is well to continue the ammonia with Fowler's solution or one of the other arsenical preparations. If there is a decidedly gouty tendency, small doses of wine of colchicum (say ten drops), and in rheumatic

habits, the acetate or bicarbonate of potash (in half drachm doses) may be added to each dose. The alkalies must be given *largely diluted* with water, and the dose must be gradually increased till the medicine disagrees or the eruption begins to fade.

Hydrocotyle Asiatica has been greatly extolled of late, especially by the French, in the treatment of eczema. It has been very little used in this country, however, although it seems well worthy of a trial, if we may judge from the high encomiums which have been passed upon it by our continental brethren. I have not yet tried it in Dispensary practice, owing to the narrow-minded policy of the French manufacturer, who sells each little bottle of granules at five francs; and, as there are about eighty granules in a bottle, it follows that every ten or fourteen days five francs must be expended, which is too much for the ordinary run of Dispensary patients. In private practice I have tried it several times, and apparently with benefit; but my experience of it is not yet sufficient to enable me to decide upon its merits. I would advise you, however, to try it in cases which resist the ordinary means of cure. The directions for the use of the granules are given in a paper which is enclosed along with each bottle.

Before leaving the internal treatment, let me lay before you four rules which you must carefully attend to in the employment of alterative medicines:—

1st. Let the dose, at first small, be gradually increased till the medicine disagrees, or till the disease begins to yield, and then let it be gradually diminished.

2nd. If the medicine disagrees, do not omit it altogether without very good reason, but try it in smaller doses, or in another form, or omit it for a few days till the bad effects have passed off.

3rd. To give it a fair trial, it must be continued for a considerable period of time, because in some cases the eruption does not disappear till after it has been administered for many weeks.

4th. Do not permit the patient to give up taking the medicine till some weeks have elapsed since the complete disappearance of the eruption.

If, as I hope, I have convinced you of the great benefit which accrues from the judicious selection of internal remedies in the treatment of eczema, and of their power, in many instances, of removing the eruption when administered alone, you will, perhaps, be hardly prepared for the statement which I make, as the result of some *experience*, that the *local treatment* is even

more effectual than the constitutional, although it must be confessed that the applications made use of by many Practitioners in this country are unfortunately too often ineffectual, and not unfrequently injurious.

I shall not attempt a description of all the preparations in general use in the local treatment of eczema—some of them good, some useless, many hurtful—but shall endeavour to lay before you a short account of those which I have found most valuable, and, what is of the greatest importance, to point out, as far as possible, the indications for their use.

The first point in the local treatment of every eczematous eruption, without exception, is to remove all the crusts which have formed upon it. Till this is done, we can only guess at the condition of the parts beneath; our applications must, in consequence, be selected at random, and these cannot reach the diseased surface whose condition they are intended to modify. You will often meet with opposition on the part of the patient or friends in carrying this injunction into effect, either owing to their laziness, to their preconceived opinions, or to the pain which is sometimes experienced in the removal of the crusts. Patients come here, day after day, informing me that they have done what they could, but have only partially succeeded. You should, in such instances, repeat your instructions, and send your patient home again, for my invariable rule is to refuse to prescribe any local applications till the diseased surface is fully exposed to view, by which means much less time is lost in the end, and the subsequent treatment is much more satisfactory.

The removal of the crusts is a very easy matter, and each practitioner has his own favourite method of procedure. I usually recommend a poultice composed of crumb of bread and hot almond oil to be applied to the eruption at night, and if the crusts do not come away with the poultice in the morning, the part is lubricated with fresh almond oil, and the crusts removed with the finger nail about half an hour afterwards, when they have become thoroughly softened. When the crusts reappear, as frequently happens, especially at the commencement of the treatment. they must invariably be removed before the reapplication of the curative agent.

Let us suppose, now, that all the crusts have been removed, and the diseased surface fully exposed to view, what local applications are we to make use of?

If the eruption has just made its appearance, if the surface is acutely inflamed, if it is studded with numerous vesicles or pustules, but particularly if *burning heat* is complained of in place of itching, local sedatives must be employed. A very good application is a cold potatoe-starch poultice, a small quantity of a powder containing camphor being sprinkled over

its surface before being applied, which relieves at once the burning heat.

℞. Camphoræ, ʒss; alcoholis q.s.; pulv. oxydi zinci; pulv. amyli, āā ʒiij. M.

Sig. Sprinkle a little over the part, or upon the poultice occasionally, to allay the burning heat. Let a small quantity be made at a time, and let the powder be kept in a stoppered bottle, as it loses its strength by exposure to the air.

Or, instead of poultices, emollient ointments may be employed, such as the simple or benzoated oxide of zinc ointment, cucumber ointment (Neligan), or cold cream. A mixture of powdered oxide of zinc and glycerine, in the proportion of half an ounce of the one to two ounces of the other, forms likewise a very soothing application, and to these may be added a little camphor if necessary.

℞. Camphoræ, ℈ij.; pulv. oxydi zinci, ʒss.; glycerinæ, ʒij., cochinillini, gr. ij.; spt. rosarum, ʒj. M.

Sig. Stir the mixture before using it. Rub a thin layer over the inflamed part twice or thrice daily. A most elegant formula.

When the disease becomes chronic, as is indicated more particularly by the disappearance of the burning heat, and the supervention of itching, the local applications which are appropriate are very different, but even they vary according to the stage of the eruption.

If there is *infiltration* of the skin to any extent, the local treatment which I am in the habit of prescribing is that recommended by some continental dermatologists—in connexion with which the name of Hebra must always be honourably associated—and which has only of late began to peep forth in fragments in English Medical journals. This is the treatment by means of *potash* applications, which has been uniformly adopted at the Dispensary, and with great success. Having had the privilege some years ago of witnessing the carrying out of this means of cure in Hebra's wards at Vienna, some of the prescriptions may resemble very much, or even be identical with, those of that distinguished dermatologist, though I am unable to state at this moment which are due to him and which are mere modifications of my own. I trust, however, I have sufficiently done justice to his merits, and that you will acquit me of the desire of taking any credit, except in so far as the success of this treatment has been first thoroughly established in this country by my colleague, Dr. Buchanan, and myself.

The strength of the local application varies with the amount of the infiltration, and likewise with the extent of the eruption; for of course when the disease is extensive, it would be injudi-

cious to make use of those very strong applications which may be applied with safety in the more circumscribed cases.

If the infiltration is slight, or the rash extensive, common *potash soap* (soft soap, black soap, sapo mollis, sapo viridis), or a solution of one part of it in two of boiling water, a little oil of rosemary or citronella being added to conceal in part the odour, may be used.

℞. Saponis mollis, ℥i. ; aquæ bullientis, ℥ij. ; olei citronellæ, ℥ss. M.

A piece of flannel dipped in this should be rubbed as firmly as possible over the affected parts night and morning, and the solution allowed to dry upon them, though it should be washed off before each re-application ; or a piece of flannel wrung out of the solution may be applied to the part, and left in contact with it all night if the patient can bear it.

A more elegant preparation is the *aqua potassæ* (Ed. Ph.), which may be painted over the eruption night and morning with a large brush, its irritant action being neutralised by means of cold water when the smarting becomes excessive.

Instead of soft soap or aqua potassæ, solutions of *potassa fusa* may be employed. In the mildest cases, with only slight infiltration, two grains of potassa fusa in an ounce of water ; in the more severe, five, ten, twenty, thirty grains or even more. An ounce of water may be used, but I rarely resort to a stronger solution where the eruption is extensive. Even the solution containing thirty grains to the ounce, which may be applied in the same way as aqua potassæ, must be washed off with water very speedily, and the application should not be repeated oftener than once daily at the most. When such a strong solution is prescribed, and, especially if the eruption is extensive, it is advisable for the Physician to apply it himself, at first at all events. The solution has been used too strong, or been allowed to remain on too long, if it produces any manifest destruction of the skin. When the eruption is very limited and very obstinate, a much stronger solution may be applied, and Hebra sometimes uses a solution of one drachm of potassa fusa in two drachms of water, or even employs the solid caustic itself. This must be done, however, with the greatest circumspection, and the caustic washed off almost immediately, else it is certain to produce great destruction of the skin.

When these strong applications are used, and there is a tendency to the formation of fissures, it will be well to apply cod-liver oil or glycerine to the parts every night, by which means that brittle condition of the skin, which is so much favoured by the use of potash locally, and which leads to the formation of fissures, is in part avoided.

Instead of potassa fusa, some recommend solutions of chloride of zinc in similar proportions, but I have very little experience of it, being so well satisfied with the performances of the former. The following case, however, proves that it is a useful agent :—

Hugh D., aged about forty, saddler, came to the Dispensary for Skin Diseases, March 17, 1862. Small patches of eczema were noticed on the backs of his hands, sides of his fingers, and about his wrists. These were very itchy, with a good deal of infiltration; some of them studded with vesicles, and exuding a serous fluid, others dry and scaly. Although some of the patches were situated over the joints of the fingers, there were no fissures. A solution of chloride of zinc (℈j. to the ℥j. of water) was ordered to be painted over the affected parts morning and evening, and, if the action was too severe, it was to be moderated by the use of cold water. In the intervals between the applications he was to bathe the hands repeatedly in cold water.

March 24.—Greatly improved; itching nearly gone; infiltration of skin much diminished; serous exudation very slight, and only after the application of the zinc lotion.

The patient noticed a slight tendency to the formation of new vesicles on and around the patches, which was at once checked, however, by the lotion.

March 31.—Eruption gone.

When any of these irritants are made use of, they cause smarting, and, when stronger mixtures are applied, often considerable pain; but patients have informed me that, although the smarting and pain are severe, they prefer it to their old enemy, the itching. On the other hand, some patients, although this is rarely the case, will not submit to a repetition of the remedy. I was particularly struck with this in the case of a Medical man in this city, who consulted me some time ago about an extensive eczematous eruption of old standing, and for whom I prescribed the mildest of the applications above referred to. He told a friend shortly after that he had applied it once, and that it had nearly killed him, the fact being that he had been affected with eczema so long, and had tried so many useless drugs, that his faith in the effect of remedies was shaken, and he would not give a fair trial to a system of treatment which, though a little unpleasant at first, would certainly have cured him. But Medical men are notoriously the worst and most refractory patients to deal with.

Having pointed out to you that the strength of the potash or zinc solutions which are employed varies with the amount of infiltration of the skin, it will probably have occurred to you that, when the eruption is extensive, and some of the patches much more infiltrated than others, a weak solution may be

applied to the latter, a stronger one to the former; and it is equally obvious that, as the infiltration subsides, the solution may be gradually diluted.

Often, by continuing the use of a weak potash solution for some time after the infiltration is gone, all trace of the complaint disappears, but in most instances it is better to substitute for it one of the preparations about to be mentioned as the disease verges upon a cure. But if, on changing the local application, the infiltration of the skin reappears to any extent, you must at once have recourse to the potash solutions again. I have just one caution to give you before leaving this subject, namely, that you must be careful in the use of these solutions, and especially the stronger of them, in the case of infants, of delicate females, or of old and infirm persons, as the shock produced by their application may possibly be followed by serious results.

While these applications are being employed, cold water forms a very agreeable and useful adjunct. The affected parts may be bathed repeatedly with it during the day, and it is advisable that it should be allowed to fall upon them from a height. Sometimes cloths wrung out of cold water may be placed upon the eruption with advantage in the intervals between the applications, and, if the rash is very extensive, much relief is experienced by plunging into a cold bath, or making use of the shower-bath or cold douche.

I have already pointed out that in mild cases the eruption is often kept up by the scratching alone, and that in these instances local sedatives have sometimes the effect of curing the disease by allaying the itching, and the desire to scratch the part. Hence you will understand how, in more severe cases, while the scratching does not of itself keep up the disease, it certainly tends to aggravate it and to make it more rebellious.

We must therefore exhort the patient to refrain from scratching as much as possible, and at the same time we must employ means to allay the itching. The potash and zinc preparations have certainly this effect in a marked degree, and so has the application of cold water (for the time); but sedatives and narcotics taken internally are not, in my opinion, of the slightest service except in so far as a large dose may produce sleep, and, when the patient has long been deprived of it, owing to the itching, this is much to be desired. Lotions of dilute *hydrocyanic acid*, in proportions varying from ℥v. to ʒj, (Ed. Ph.) in an ounce of water or glycerine, may be applied with advantage whenever the part is itching, instead of *giving way to the desire to scratch.*

When such a strong solution as ʒj. of prussic acid to the ℥j. of water is used, it must not be applied over a very extensive sur-

face, and the patient must be warned that it is a very powerful poison. You will often find it of advantage to combine the prussic acid with one of the potash applications formerly referred to, in the proportion say of ℥x. to an ℥j. of the mixture.

℞. Potassæ fusæ gr. x.; acid hydrocyan. dil. (Ed. Ph.), ℈j.; aquæ rosarum, ℥j. M.

Sig. Rub a little freely over the eruption night and morning, and when the itching sensation is severe.

Some prefer the use of cyanide of potassium in the form of ointment. For this purpose from five to ten grains may be mixed with cold cream, or the benzoated oxide of zinc ointment.

℞. Cyanidi potassi, gr. vj.; cerati galeni (Paris codex), ℥j.; cochinillini, gr. j. M.

Sig. Rub a little firmly over the parts which are itching, but let none of the ointment remain undissolved on the skin.

Tarry preparations are of the greatest value as local applications in the treatment of eczema, though they are of no use whatever when administered internally. They have long been in vogue in this country, but have too frequently been used in a routine way, and without discrimination. You must therefore bear in mind the fact that they are chiefly of use in the declining stages of eczema, when the infiltration and itching are moderated.

Common tar *(Pix liquida)* is the application most frequently used at the Dispensary, on account of its cheapness, but in private practice you may employ more elegant preparations, such as the oleum rusci or oleum cadini (oil of cade). The latter, which is the product of the dry distillation of the wood of the *Juniperus Oxycedrus*, is manufactured at Aix-la-Chapelle, and you must be sure that it is got there, else you may have sent to you a liquid prepared from common tar.

Whichever of these preparations you select should be rubbed firmly over the eruption by means of a piece of flannel, and allowed to dry upon it. It should be applied thrice daily, and washed off as well as possible with soft soap, or, amongst the higher classes, with petroleum soap.

Several kinds of soap containing tar and oil of cade, under the name of tar and cade soaps (the latter should be obtained from Aix-la-Chapelle, but it is very expensive—3s. 6d. a cake), are used by some instead of these preparations in their pure state. If you employ them, you should use them like common soap—only rub them more firmly over the parts—and in many cases you will find it of advantage to allow the soap to dry upon the eruption.

I rarely employ tar alone, however, in the treatment of eczema, but usually combine it with one of the potash solutions, in which case you may use it before the infiltration

has subsided; for while I told you that tar was most useful in the declining stages eczema, I merely meant you to understand that it should not entirely take the place of the potash or zinc solutions while the infiltration was considerable. A most admirable preparation, one of Hebra's, and which is used to a great extent at the Dispensary under the name of "tinctura saponis viridis cum pice," and with the most charming effect, is a mixture of equal parts of common tar, methylated spirit, and soft soap, which should be used exactly in the same way, and as frequently as the simple solution of soft soap.

The following case, reported by my assistant, Mr. Arthur Jamieson, many similar to which you have an opportunity of seeing almost every day at the Dispensary, illustrates the beneficial effects of this mixture;—

William S., aged forty-five, labourer, came to the Dispensary for Skin Diseases on Nov. 10, 1862. He was affected with "eczema impetiginodes" of both ears and the whole of the face, with the exception of the nose. He complained of intense itching, with considerable heat of the parts. The exudation, of a purulent nature, was abundant, and in many parts had concreted, forming large crusts which almost entirely covered the whole of his face. The infiltration of the skin was great; his general health pretty good.

He was ordered a calomel and scammony purge, and a mixture of oxide of zinc and camphor, in the proportion of gr. xx. of the latter to ℥j. of the former, was applied night and morning to the eruption after the removal of the scabs.

13th.—No improvement; ordered the tinctura saponis viridis cum pice.

24th.—Eruption completely gone.

In private practice, where expense is less an object than the elegance of the preparation, you may substitute oil of cade for common tar, and rectified spirit for methylated spirit, while a little oil of lavender may be added to conceal in part the disagreeable odour, or, instead of using soft soap at all, a solution of potassa fusa may be added to the mixture, the amount of the caustic potash depending upon the amount of infiltration of the skin.

℞. Saponis mollis; spt. rectificati; olei cadini, āā ℥j.; olei lavandulæ, ℥jss. M.

Siq. Rub a little firmly over the eruption night and morning, and wash it off before each reapplication.

The preparations of mercury and sulphur, justly esteemed in the treatment of eczema, are most beneficial when the eruption is verging upon a cure, when the infiltration and exudation are gone, and the itching moderated.

Of the mercurials, citrine ointment is my favourite application, though the red and white precipitate ointments are perhaps, equally useful, or the "Unguentum hydrargyri iodidi" of the London Pharmacopœia. These may be used of full strength or diluted with lard, and, if it is indicated, a few grains of cyanide of potassium may be added to allay the itching. If a lotion is preferred, from one to four grains of the bichloride of mercury may be dissolved with the aid of a little alcohol and mixed with an ounce of rose water, while a little dilute hydrocyanic acid may be added if necessary, the solution being rubbed into the part two or three times daily. In using mercurial preparations locally, you must always bear in mind the possibility of their being absorbed in sufficient quantity to produce salivation; hence you must be careful in anointing an extensive surface, and should warn the patient to discontinue the application if the gums become tender.

It was only the other day that I ordered a lotion of bichloride of mercury (gr. ij. to the ℥j. of water) to be applied to the nose of a lady, and in three days, to my astonishment, salivation had occurred. On the other hand, I have repeatedly ordered stronger lotions to be applied to extensive surfaces for weeks without the occurrence of the slightest tendency to salivation, thus showing the peculiarities of different constitutions.

Of the preparations of sulphur, the common sulphur ointment, of full strength or diluted, and with or without the addition of cyanide of potassium, forms a very useful application. In some cases you may add a little bicarbonate of potash with advantage.

℞. Cyanidi potassi, gr. v.; sulphuris; bicarbonatis potassæ āā ℥ss.; cochinillini, gr. i.; axungiæ, ad ℥j. M.

A drachm of sulphur mixed with an ounce of alcohol forms a capital lotion, but you must tell the patient to shake the bottle before pouring out the liquid, as the sulphur falls to the bottom. This should be rubbed firmly over the part night and morning and allowed to dry upon it. If the patient is drinking sulphur waters at Moffat, Harrogate, or elsewhere, and especially if the rash is on the decline, he may combine their external use with their internal administration in the shape of warm baths.

When an ointment is employed in the treatment of eczema, you must give full directions as to the manner of applying it. A very small quantity should be melted on the point of the finger, and rubbed firmly into the affected part, and none of it should be allowed to lie undissolved upon the skin, nor, in most instances, should its colour be perceptible after its application; the surface should merely have the appearance of having been recently moistened with pure water. The part should

always be cleaned with soap and water before reapplying the ointment; for if you smear layer after layer of it upon the skin, it becomes rancid, acts as an irritant, and is calculated rather to be prejudicial than otherwise.

Astringents are of use in some cases of eczema, such as the sulphate of zinc or copper in proportions varying from three to twenty grains in an ounce of rose-water or solution of the diacetate of lead, diluted with distilled water, but I rarely have occasion to use them, and I think you will find them inferior to the remedies previously described.

For the purpose of curing a very mild, or preventing a threatened attack of eczema, or obviating the occurrence of an immediate relapse, the skin may be washed occasionally with soft soap and water. In private practice, you may recommend the use of Hendrie's "Dispensary Petroleum Soap," which is sold at sixpence per cake, and which is one of the most delightfully perfumed soaps with which I am acquainted.

The following cases of eczema erythematodes is of value, as illustrative of many of the points of treatment to which I have adverted when the eruption covers an extensive surface :—

A gentleman from the West of Scotland, aged about forty, consulted me on November 9, 1861, about an eczematous eruption of great severity and of many weeks' duration. (He had had one previous attack, which lasted three years). The parts affected were the neck, lower part of the abdomen, inner aspects of the thighs, and the arms and legs, especially on the flexor surfaces of the elbows and knees. The eruption was bright red, and presented an erythematous surface, neither vesicles, pustules, nor papules being visible. There was no exudation from the abdomen or extremities. The skin of the neck, on the other hand, was much infiltrated, and from it serum exuded in abundance. The itching was severe. He was robust, without being corpulent, and, with the exception of the eruption, was in perfectly good health. He was ordered to rub the inflamed parts firmly morning and evening with a piece of flannel dipped in the following mixture :—

℞. Acidi hydrocyanici, dil., ℥xl.; saponis viridis, ʒjss.; aquæ, ʒiij.; olei rosmarini, ʒj.

Cold water was to be frequently dashed over the parts, five drops of Fowler's solution taken thrice daily after food, and a farinaceous diet recommended.

November 12.—No change. Local application omitted, being too weak. The whole eruption was painted with a solution of potassa fusa (ʒss. to the ℥j. of water), which was washed off with cold water whenever the smarting became very severe. This was followed by the exudation of a considerable quantity of serum, especially from the neck. The patient was ordered

to repeat this every two or three days, oftener or seldomer according to the severity of the application and the effect produced. The cold shower-bath was to be used twice daily, and the Fowler's solution to be continued.

In a letter, dated November 21, I was informed that the infiltration had quite disappeared from the arms, legs, and abdomen, and only some redness and itching remained. The infiltration, exudation, and itching of the neck were much moderated. He was ordered to continue the potassa fusa solution to the neck, and the following mixture was to be rubbed firmly over the other parts night and morning:

℞. Acidi hydrocyanici, dil., ℥xl.; olei cadini, ʒj.; saponis viridis, ʒij.; olei rosmarini, ʒiss.; aquæ, ad ʒv. M.

The Fowler's solution, which agreed, was to be increased to seven and a half drops thrice daily. The bowels and kidneys being torpid, a teaspoonful of a powder containing sulphur, magnesia, and bitartrate of potash, was to be taken at bedtime.

On December 6th, patient stated:—"Since I last wrote, the complaint spread down the legs to the ankles. I have thus been affected from the ear to the foot, first and last. The strong application (potassa fusa, ʒss., aquæ, ʒj.) checked the inflammation, and no exudation took place." The previous eruption he stated to be rapidly disappearing under the influence of the local applications, although the itching was considerable at times.

On December 30, 1861, only a little roughness and very slight occasional itching of the skin remained. The following ointment was to be applied night and morning:—

℞. Cyanidi potassii, gr. xii.; unguenti oxydi zinci benzoati.; unguenti citrini, āā. ʒj. M.

On January 9, 1862, the patient came to see me. The eruption was gone, and there was only a feeling as if the skin was not so elastic as natural. The local treatment was omitted, the dose of the Fowler's solution diminished to five drops thrice daily, and the purgative powder was only to be taken to relieve constipation.

January 1, 1863.—No return of the eruption. Treatment omitted ten months ago.

There can be no doubt that the local treatment was the most effectual in this case.

When the eczematous eruption occupies a limited extent of surface, it usually requires to be attacked by strong local applications, while it is not, as a rule, so much under the influence of internal medicine as when it covers a large area. In such cases, strong solutions of potassa fusa or chloride of zinc, or even these caustics in the solid form, may be employed locally in the manner and with the precautions previously described,

and often with benefit; but you must remember to omit them whenever you have removed the infiltration of the skin.

Cauterization with solid nitrate of silver may sometimes be resorted to instead of the above, or the tincture of iodine painted over the part night and morning, and a poultice of bread and hot water applied about once a week to remove the red skin which forms a covering to the eruption, and prevents the new layers of iodine from coming in contact with the disease itself. But of all the local means for the removal of limited eczematous eruptions, none are equal to blistering them. This may be done by means of a solution of bichloride of mercury (℥j. to the ℥j. of alcohol), the fluid being painted over the eruption, and allowed to dry upon it. The action of the mercurial is, in this case, almost entirely local, and I have never witnessed any effect upon the system at large from its application.

The best blistering agent, however, is the glacial acetum cantharidis—that is, acetum cantharidis prepared with glacial acetic acid—the ordinary solution of the Pharmacopœia being too weak. It should be made in small quantities at a time, and kept in a good stoppered bottle, the stopper being removed for as short a time as possible, and, when not in use, covered with leather, otherwise its strength soon diminishes, and much annoyance is thereby occasioned. A little of this solution should be taken up by means of a paint brush, and painted firmly over the part till it becomes perfectly white. If the fluid is of full strength, and the skin thin, as on the face, it usually blisters it at once; but if the opposite holds, and especially if the head or palms of the hands are to be blistered, it may require to be painted over them for several minutes. After the skin is *thoroughly whitened* a hot poultice may be applied to make the blister rise. One application is often sufficient to remove the eruption; but, if necessary, it may be repeated weekly, the crust produced by the previous eruption being softened with oil and removed before each reapplication.

A couple of months ago, a gentleman, aged about 35, and otherwise in perfect health, consulted me with regard to an eczematous eruption on the head, of twelve years duration, for which he had been repeatedly shaved, and had consulted many Physicians of eminence. Tar had been applied to the scalp systematically for some time, and every conceivable ointment had been used but without avail. After his hair was removed, I found that the disease corresponded to the form which I described to you under the name of eczema squamosum: it covered the whole head, and, as usually happens in these obstinate cases, was accurately limited to the hairy parts. The scales on the surface were numerous, the itching severe, and, on the crown, front, and sides of the head, the infiltration and

redness of the skin were great. I blistered these parts with glacial acetum cantharidis, the fluid requiring to be painted on for some minutes, owing to the thickness of the skin, and ordered the rest of the scalp, which was less severely affected, to be painted with tincture of iodine morning and evening. In a fortnight the iodine was omitted, and when the crusts and scales produced by the iodine and the blistering fluid were removed, the scalp appeared perfectly healthy and without a vestige of the previous eruption. To consolidate the cure, however, tincture of iodine was painted over the whole head night and morning for a fortnight, and when the red skin was removed, the scalp looked remarkably well, there being not even the vestige of a scale, which can rarely be said even of the head of a healthy person. No other treatment was resorted to, and the gentleman has since been in America. In the interval his hair grew in greater force than ever, and he is delighted to be rid of his old and indefatigable enemy.

Many cases such as these might be mentioned, but I shall just refer to one more, which many of you had an opportunity of seeing:—A woman, pretty well advanced in years, came to the Dispensary a few months ago, to get advice about an eczematous eruption of old standing, which covered the whole of the palmar surface of each hand. She had likewise a tendency to eczema of the leg, which was removed by means of the "tinctura saponis viridis cum pice," a preparation previously referred to. It is of the hands, however, I wish to speak. The eruption here assumed that form which I described to you as eczema rimosum, the fissures being very numerous and deep, and the infiltration of the skin great. Itching was mingled with the pain, but the latter, on account of the fissures, predominated. Owing to the pain and stiffness, the hands were kept constantly in a semi-closed position, and she was unable to use them. I blistered each hand with the glacial acetum cantharidis, which had a marvellous effect. The eruption disappeared completely, and the patient returned with joy depicted in her countenance, and opened and closed her hands with perfect facility, not unmingled with pride.—*Medical Times and Gazette, July* 11, 1863, *p.* 31.

66.—CASES OF HOSPITAL GANGRENE.

By C. F. Maunder, Esq., Assist.-Surgeon to London Hospital.

[The disease known as "hospital gangrene" prevailed in the London Hospital during the latter part of 1863. It took its origin in the case of a young woman with an unhealthy sore on the dorsum of the foot. From such a case as this the disease

may spread to a patient only separated by the distance of a bed or two, simply through the air. Besides this the disease may spread from actual contagion, owing to the careless and indiscriminate use of sponges; or a disregard for manual ablutions on the part of the attendants. And even the conveyance of the poison from an infected to a healthy wound by the common house fly must be regarded as possible.]

This disease was no respecter of persons, attacking the old, middle-aged, and young of both sexes; destroying in its course the various tissues of the body, whether skin, muscle, blood-vessel, &c., &c., although it would appear to have a greater affinity for the integument, tending sometimes to burrow and to undermine the skin, and thus causing it to fall in and to be destroyed, than for other structures. Its local effects were suddenly and unexpectedly made evident, as in the case of the patient, the subject of anthrax, whose wound on one occasion was granulating and contracting, and eight-and-forty hours later was totally altered in character. Provided that the wound were small there was no constitutional sympathy; and even when a large surface was attacked, its effects upon the constitution did not appear to be marked by any peculiarity, prostration of the vascular system existing only in proportion to the size of the wound, and to its consequent debilitating influence, rather than as a result of blood-poisoning. The functions of the important viscera were performed with tolerable regularity—the skin being normal and the tongue clean; pain (described as of a pricking, shooting character) was not severe in the majority of the examples which came under my observation, neither did the local inflammation run high; on the contrary the type of the disease was decidedly asthenic, and attended in some instances by great vascular debility, without a corresponding degree of mental depression; indeed, in the minor cases, the aspect and general condition of the patient did not in any way lead to a suspicion of the local condition, an observation of the wound itself being absolutely necessary in order to establish the fact. Although no period of life appears to be exempt from this disease, it must be borne in mind that not one of the individuals attacked was in robust health; one was ill-fed; another, the subject of carbuncle; a third, young, but the operation to which she had been subjected had been followed by an attack of erysipelas; a fourth, healthy, but obese, and the operation had also been followed by erysipelas; while all had been in the Hospital at least a fortnight, and were consequently exposed to similar hygienic conditions. Of the regions of the body, no one part more than another appeared to be either specially obnoxious to or free from the ravages of this disease, for even the cephalic region, the trunk comprising in this instance the mam-

mary region and the anterior-abdominal region, and both the upper and lower extremities, were alike attacked.

Whatever may be the source of this malady, whether in the atmosphere of a crowded ward, containing a large number of patients, the subjects of wounds, whose blood becomes vitiated through the respiratory organs, and so influences the wound indirectly; whether in the direct action of this atmosphere upon the sore itself, or in both of these means conjointly; whether the cause always exist in some material form, or be generated by an accumulation of certain necessary and co-operating conditions; whether it be extraneous, and the result of an appreciable inoculation, or be autogenic, I am unable positively to determine. I incline, however, to the belief that it may take origin in two ways; either in a vitiated atmosphere, independently of the constant presence of any specific *materies morbi*, and that a wound affected by this former assumes certain characters, which we designate hospital gangrene, and becomes at once a fruitful source for the propagation of the complaint either by direct inoculation (by careless attendants, for example) or by the atmosphere taking up and depositing upon a previously healthy wound the germ of the disease now produced. Secondly, the disease may be introduced from without, as exemplified in the person of the female supposed to have been admitted with the disease upon her, and who thus gave origin to a scourge from which scarcely any surgical ward in the Hospital has been exempt. The belief that this scourge had an extraneous origin is supported by the opinion of Mr. J. G. King, who suspected the nature of the sore on the foot of the young woman already noticed, and promptly treated it, and to whose condition he referred me, on being asked if there were any wounds in the Hospital that had assumed similar characters to Cases 1 and 2.

At this period, too, Mary-ward, especially the west-end portion, was comparatively devoid of patients, and it may therefore be presumed that its atmosphere was comparatively wholesome. But, though it be possible that direct contamination will account for the spread of the disease in Mary-ward, yet such mode will scarcely explain its appearance in other and distant parts of the building, holding no direct communication with the above ward, and from this point at least its mode of propagation is at best conjectural.

On comparing the experience recorded by Guthrie (Commentaries on Surgery, p. 163, &c.), both of himself and others, of this disease, I find that some difference of opinion exists concerning its nature—whether local or constitutional—the majority being in favour of a local origin: and certain apparently sound arguments are used to support this theory, and instances are given as proofs, "Its character as a thoroughly contagious

disease is indisputable. Its capability of being conveyed, through the medium of the atmosphere, to an ulcerated surface is also admitted, although some have thought that the infection was not always applied to the sore, but affected it, secondarily, through the medium of the constitution. Brugmans says that hospital gangrene prevailed in one of the low wards at Leyden, in 1798, whilst the ward or garret above it was free. The surgeon made an opening in the ceiling between the two, in order to ventilate the lower or affected ward, and in thirty hours three patients who lay next the opening were attacked by the disease, which soon spread through the whole ward."

"A wound," says Guthrie, "attacked by hospital gangrene, in its most concentrated and active form, presents a horrible aspect after the first forty-eight hours." Having detailed its characters, he continues—"This gangrenous disease does not always prevail in this, its most concentrated form. The destroying process assumes more of a sloughing than of a gangrenous character, whence Delpech has denominated it *pulpous*." This latter, rather than the more acute, is the form of the disease which characterised the cases under my observation, and this distinction is the more necessary because upon it depended the peculiar local treatment adopted, and to be advocated. South says, "My friend Arnott (South's Chelius, vol. i. p. 69) informs me that in January, 1835, in one of the female wards of the Middlesex Hospital three cases occurred which might be classed under the head of hospital gangrene." The character of the disease in these examples accords very closely with that of the recent epidemic, being of the *pulpous* form.

While discussing this subject it will not be irrelevant to notice briefly other forms of gangrene which might possibly be mistaken for the above variety.

1st. Sloughing phagedæna, which is very similar in its character to the above, but usually confines its attacks to the venereal or *soft* chancre, more especially when the subject of it has been previously contaminated by syphilis, or has been debilitated either by other diseases, by climate, or by mode of life. A simple wound, too, say on the lower extremity of an ill-fed, cachectic individual, will sometimes take on this action. The rapid sloughing of a cutaneous syphilitic node is another illustration.

2nd. Phagedæna, which is a milder form of the above, being less rapidly destructive, and also usually associated with venereal sores, whether hereditary, acquired, or tertiary.

Between these latter varieties and hospital gangrene an important distinction exists; gangrene being, I believe both contagious and infectious, while sloughing phagedæna and phagedæna are possibly contagious, but certainly not infectious.

I think these last complications of wounds originate either in

the sore itself, which is their seat, or in the then peculiar condition of the system reacting upon the sore, or possibly in both thus associated.

The *soft* or *non-infecting* chancre is prone to take on either of these latter complications.

Treatment.—The treatment adopted in the cases referred to was of two kinds—constitutional and local: the former being conducted in accordance with the indications present, and without reference to the peculiar condition of the wound; the latter had a direct and either a sudden and powerful or constant influence upon the sore. The remedies employed were *nitric acid* and *copious use* of *water* locally either singly or *seriatim*, and these I regard as the best means at our command for checking the ravages of hospital gangrene.

The use of these remedies has for its object either the sudden destruction of the whole secreting surface of a wound by means of a strong chemical agent, so as to form a slough, not only of the dying, but also, to some extent, of the subjacent living tissue, with the hope that on the separation of the eschar a healthy wound will result; or, the quick removal and dilution of the secretion from the poison-giving wound by the constant or frequent contact and change of water.

As to the comparative value of these remedies I am inclined to give the preference to nitric acid; it can be readily employed, its action is sudden and decided, and although the application of this agent causes temporary suffering, still the pain, inherent to the disease, subsides with that induced by the action of the acid. To be effectual, it must be applied to the whole affected surface and edges of a wound, and if seated on the exterior of the body a-quarter of an inch of skin at the margin of the sore should be included in the eschar. Should the integment be undermined at any point, the instrument conveying the acid must be there inserted, that no particle of infected material may escape destruction, and remain ready to re-inoculate the wound on the separation of the slough. When employed, this agent should not be used sparingly, and care should be taken that it penetrate the already existing sloughs, and involve some portion of tissue still living beneath them. If the patient be not under the influence of an anæsthetic, it will require some courage on the part of the surgeon to use this powerful agent thoroughly, especially if the wound be extensive, but he will be only doing his duty and be actually conferring a kindness upon his patient by acting energetically at once, rather than by an ill-timed sympathy with suffering, to run the risk of the necessity for a second application of the acid.

That a favourable result may follow the use of the acid, it must come into contact with *every* portion of the diseased tissues,

and therefore, in some instances is manifestly inapplicable; while, on the contrary, in small, or even in large, superficial wounds, it is eminently appropriate. But a sore on the forearm, in which the deep fascia and inter-muscular septa had been destroyed, and the phagedænic action had travelled along the interstices of the muscles, had opened main arteries, and threatened to destroy the whole thickness of the limb,—may be regarded as an example of the disease in which the use of nitric acid was inadmissible; this remedy, had it been possible, which it was not, to apply it to all the ramifications of the disease, would have been as destructive to the limb as the malady itself.

Constant ablution, the second remedy referred to, may be effected either by allowing water to run or drip continually upon the wound (irrigation); or by placing the member in a warm-bath; or by interrupted but frequent pourings of warm water over the affected part. The first and second methods are applicable to wounds on the trunk, arm, and lower extremity, while the bath may be employed for the hand and forearm. The water of the bath should be often changed, and however employed, may be medicated with some antiseptic agent—some preparation of chlorine or with Condy's fluid. This remedy should have a temperature agreeable to the patient's sensations, and is especially applicable to compound wounds in which various structures are involved by the disease in question—water will harmlessly follow the ramifications of the malady among important parts, to which nitric acid would be wantonly destructive. The length of time during which the water remedy was employed was determined by the condition of the wound. As soon as the sloughs had separated, and the diseased action had ceased, the bath was discontinued, and a preparation of chlorine usually substituted. In one instance, the bath was used thirty-one days. In another case, that of a boy, aged fourteen, under the care of Mr. Curling, with compound fracture of the leg, irrigation was employed three weeks.

In all cases, where practicable, a change of air is the grand *desideratum*—removal from one room to another; from one building to another; or from a town to the country, and especially the latter, will exert a salutary influence.

N.B.—Since going to press, a gangrenous stump has been most successfully treated by Mr. Curling with the *actual cautery;* the remedy having been thoroughly applied over the face of the stump, and in the interstices of the different tissues with the view of reaching and destroying every particle of the diseased structure.

I have also had the opportunity of verifying an important practical point—a distinctive character of *hospital* and *traumatic* gangrene At a time when hospital gangrene exists in an hospital, every variety of sloughing is liable to be regarded with

suspicion and anxiety, and I have watched with great interest three cases of wounds after operation which have been subjected to traumatic gangrene. Two of these were consequent on amputation, the third a flap turned up to favour the removal of a mammary tumour. In either case the portion of integument which was ultimately cast off was subjected to *desquamation of its cuticle*, a pathological condition which did *not* exist in any case of hospital gangrene which came under my observation.—*Clinical Lectures and Reports of London Hospital*, 1864, *p.* 114.

AFFECTIONS OF THE EYE.

67.—ON TREATMENT OF SQUINT BY OPERATION.

By J. W. Hulke, Esq., Surgeon to the Royal London Ophthalmic Hospital, Moorfields.

[This article is a review of 99 cases of convergent squint treated by operation, with remarks upon the operation. In 50 cases Mr. Hulke adopted the operation in general use by his colleagues, and which he distinguishes as "the Moorfields' operation." In the remaining 49 he adopted the operation of Von Graefe; which operations he then proceeds to describe.]

In the Moorfields' operation, the eye-lids having been separated with a spring speculum, the assistant turns the cornea outwards, seizing, for this purpose, the conjunctiva boldly, close to the outer border of the cornea, with a rats-toothed forceps. The operator seizes, with a similar forceps, a small fold of conjunctiva, nearly midway between the inner edge of the cornea and the caruncle, just over the lower border of the tendon of the Rectus internus, and snips it with slender blunt-pointed scissors, so as to make a small horizontal incision. The fascia, which this incision exposes, is in turn snipt through. Next a blunt hook, with rather a large curve, is passed through the wound beneath the tendon, which is put on the stretch by slightly raising the hook, and divided with small snips of the scissors between the hook and the sclerotic.

The advantages claimed for this operation are those which it possesses in virtue of its subcutaneous character, and the absence of that recession of the caruncle and undue prominence of the eyeball which are not infrequently observed where the conjunctiva has been freely divided.

I believe that these advantages are gained where care is taken to keep the conjunctival wound small, where unnecessary disturbance of the fascia is avoided by using a hook with not too large a curve, and by not sweeping the hook too widely in search of the tendon, where the tendon is divided strictly at its inser-

tion, and by small snips without a wide separation of the scissor-blades, and where the fascia is only cut to the requisite extent for the perfect division of the tendon. Where these precautions are neglected, the Moorfields' operation loses somewhat its sub-conjunctival character, and should an unnecessary division of the fascia oculi have been made, retraction of the caruncle will hardly be absent when cicatrization is complete.

The objections that the operation is not so easily performed, and that the complete division of the tendon is not so certainly known as where a free division of the conjunctiva and fascia over the tendon is practised, deserve little consideration: for the greater difficulty, if indeed it exist, is more than outweighed by the superior results of the subconjunctival operation, and because the surgeon may rest assured that the tendon has been thoroughly divided if he can bring his hook up to the edge of the cornea. The thrombus and ecchymosis, which are not very infrequent after this operation, are more real objections, though they may be partly avoided by making a counter-wound over the upper edge of the tendon, under cover of the upper eyelid.

In v. Graefe's operation the eyelids are separated, and the eye is turned outward by an assistant in the same manner as in the Moorfields' method. The surgeon makes a small opening in the conjunctiva, with sharp pointed scissors, (which are curved on the flat, and have an eccentric hinge) between the insertion of the tendon and the inner edge of the cornea, but rather nearer the latter, and not quite opposite the middle, but nearer the upper or lower edge of the tendon. He then slides the scissor-points beneath the conjunctiva, and snips a small hole in the fascia, through which he passes a hook (with a slightly swollen end and shorter curve than that used in the Moorfields' operation) under the tendon, which he stretches by pushing it on the convexity of the hook towards the cornea, and cuts at its insertion. The external wound need scarcely be larger than in the Moorfields' method, and when the operation has been well performed it as rarely inflames and suppurates. The button of granulations, which is not infrequently very troublesome after operations where all the tissues have been freely divided occurred only in one of my 49 cases. I think there is less infiltration than after the Moorfields' method, the directness of the wound allowing the blood to escape readily. In both methods I think that the tendon is cut with equal certainty, and at the same point.

[After giving a tabular view of the cases the author describes "Critchett's operation" as follows:]

In this operation the conjunctiva is divided near the inner border of the cornea, and dissected in a flap, together with the

fascia off the inner side of the globe. This liberates the tendon of the rectus internus from its acquired faulty place of insertion. The rectus externus is next divided, in order to allow a sufficient inversion of the cornea. Lastly, the wound at the inner side of the eye is closed with fine silk stitches, after removing so much of the free edge of the conjunctival flap, that the closure of the wound draws the sunken caruncle forward, and gives the cornea a slight convergence. The tendon of the rectus internus which has been brought forward with the fascia and conjunctiva, unites itself to the globe at an anterior point, nearer the situation of its normal insertion. The fine stitches give little trouble; they fall out in a few days, or they may be removed at the end of a week. Slight convergence is always desirable at first, because the cicatrix at the inner side of the eye always yields to some extent, and if at the time of the operation the vertical meridian of the cornea has only been brought to the middle of the lid, the final correction of the divergence will be imperfect.—*Ophthalmic Hospital Reports, Vol.* iv. 1864, *p.* 160.

68.—CASE OF EXTREME SQUINT CURED WITHOUT OPERATION BY THE USE OF PRISMS.

By Ernest Hart, Esq., Ophthalmic Surgeon to St. Mary's Hospital.

[Mr. Hart considers, from a careful study of the origin and nature of various forms of squint, that the treatment ought to be almost as much optical as surgical; and that there is a large proportion of cases in which merely optical means succeed perfectly, either in averting the formation of a permanent squint, in curing it when the proper glass is applied early, or in preventing relapse after operation.]

J. C., aged twenty-seven, a sailor, of good general health, and had always possessed excellent sight. In May, 1863, he had a severe attack of rheumatic fever; various joints were attacked in succession, and he lay for nearly two months helpless in bed. Towards the end of the attack the eyes became affected: the light became painful to them; the eyeballs he describes as having become blood red, and acutely painful, the pain being severe over the brow, and darting through the head from the frontal region. The face was blistered by the abundant and acrid lachrymation. Thus there seems to have been an acute rheumatic ophthalmitis. He recovered well, and is not aware that there were any immediate traces left of the disease. He went a voyage to the Cape and came home in satisfactory health; but in the subsequent voyage in Dec., 1863, he became aware of a certain dimness and confusion in looking at objects,

a difficulty in measuring distances, and in defining the outlines of things and persons before him. This came on, he thinks, quite suddenly; and in the course of the day he found that he had a decided convergent squint of the right eye, and that he had lost control over the movements of that eye. He consulted Mr. Hart in the middle of January last.

Mr. Hart found then a convergent squint, monolateral, of the right eye, permanent, and due to paralysis of the external rectus. The visual powers of the two eyes, tested separately, were very nearly equal. There was no dilatation or semi-dilatation of the right pupil; no drooping of the lid. The latitude of accommodation was equal to that of the left eye. The patient suffered greatly by the constant confusion arising from the double set of images which the incongruous eyes received. He was frequently unable to distinguish between the true image and its ghost, and, besides the giddiness and confusion thus occasioned, felt himself in danger in walking the streets.

Mr. Hart called the attention of the class especially to the case as one in which, from the positive and negative data above mentioned, the cause of the squint might be accurately determined. He referred it to insufficiency (paresis) of the right external rectus. The normal action of the other muscles of the eye and eyelid and of the iris excluded cerebral causes; while the absence of far-sightedness or short-sightedness in any marked degree, and the healthy appearance of the internal fundus of the eye revealed by the ophthalmoscope, excluded dioptric or retinal disorder from the etiology of the case. The cause being thus determined, it remained to decide on the remedy. Mr. Hart pointed out that in this case the cause of the double images which occasioned so much distress was that incongruous portions of the two retinæ were, by virtue of the displacement of the axis of the strabismic eye, impressed with the respective images of each object seen. This might be remedied, then, by the use of a prismatically ground spectacle-glass with the base turned in the direction opposite to that of the squint; for such a glass has the power of causing a deviation of rays of light incident on its base, which may thus be used to deflect the rays proceeding from objects looked at, so that they may, in the case of the squinting eye, be made to fall upon a part of the retina congruous to that which receives them in the normal eye, and thus binocular vision be restored. In fact a prism may be used thus to fuse and destroy double images, just as, conversely, with healthy eyes, it is sometimes used in sport to produce them. Taking a series of prismatic glasses ground to scale, Mr. Hart then essayed them with this patient before the class. A glass ground to an angle of twelve degrees placed before the deviating eye, so altered the direction of the images which it

the double image into one. This, however, ... removed the visual inconvenience without ...nt. By now selecting a glass of ten degrees the ...d be nearly fused, but not quite; and then the double images, which is instinctive, caused an in... effort of the semi-paralytic and enfeebled rectus ...us, which just succeeded in drawing the eye so far further ...ard as to compensate for the diminished angle of the prism ...d fuse the double image. This, then, was the glass selected ...or the patient to wear; for by the aid of this glass the enfeebled muscle was, as it were, gymnastically exercised and strengthened. The fusion of images was not effected without an effort somewhat painful, and which could not long be sustained. Mr. Hart therefore directed the patient to employ the glass at intervals only during the day, gradually lengthening the period of exercise. In the course of seven days he had made considerable progress, could wear the glasses much longer at a time, and fuse the images more thoroughly and with less effort. He was then very anxious to rejoin his ship. Mr. Hart therefore furnished him with glasses of eight, six, and four degrees respectively, so that as the muscle became stronger a correspondingly greater effort might be required of it; the glasses fulfilling a true gymnastic as well as optical function, and acting just as dumb-bells of graduated weight, with appropriate exercise, may be made to act, in dealing with enfeebled muscles in other parts of the body. The patient was desired to communicate the result, or to show himself on his return. Recently the man presented himself quite cured. This cure was effected in the course of eight weeks. And in June he wrote to say that his eyes are now as good as ever, that the movements of the two are synchronous, and vision normal.

In another patient, now under treatment, in whom the squint was also monolateral and permanent, and on whom this method of treatment will be employed, the paresis of the abducens has followed on extreme debility after menorrhagia and lactation. Mr. Hart observed that it was essential to the good repute of this method of treatment that it should be employed with discrimination, and as the result of a careful diagnosis. It would be useless to attempt to cure by this means an alternating concomitant squint with hypermetropia, or a strabismus from active organic cerebral disease. But in every case of squint, the divergence of the eye must be regarded as a symptom, to be treated differently according to the nature of the various causes from which it arises. Sometimes a squint was the first indication of insidious meningitis in a child, of which he cited a remarkable case that he had lately seen in conjunction with Mr. Paul Jackson: then the opthalmoscopic indications are of the

highest value for the purposes of general treatment, and the squint must be disregaded. Very frequently a slight squint or confused image, due to insufficiency of the synergic action of the ocular muscles, was the first symptom of an impending acute or chronic cerebral disorder, and the ophthalmic surgeon had to yield place to the physician. In either of such cases to operate would be useless cruelty. Another set of cases were those of which the above-quoted is a fair type. Then came the large class, so admirably investigated by Donders and Von Graefe, in which squint is due to hypermetropia of the eye leading to excessive contraction of the internal rectus : in such cases, the degree of squint being measured, the division of the tendon, carefully adjusted, was followed by the best results. But to make strabotomy yield the almost uniformly successful results which might now be obtained from it, it was necessary to exclude all the cases which might be cured by other means, and also those which were incurable by any means. The application of a prismatic spectacle glass in the class of cases above defined was most successful, if carefully carried out and used for fit cases.—*Lancet, July* 30, 1864, *p.* 119.

69.—ON THE TREATMENT OF GRANULAR CONJUNCTIVITIS BY INOCULATION WITH PUS.

By C. BADER, Esq., Ophthalmic Assistant-Surgeon to Guy's Hospital.

[The treatment of granular conjunctivitis and of pannus by inoculation of gonorrhœal matter, was first practised in the Austrian army about 1812. The results obtained were very various, many were cured, some, however, were made worse by the treatment. Mr. Bader proceeds to give a short account of the different groups of cases treated by him by means of inoculation, and of the mode of operating.]

Mode of inoculation.—A small quantity (a drop) of the pus to be used for inoculation is placed with the tip of the little finger upon the conjunctiva of the lower lid of the eye which is to be inoculated, and is left there. The pus should be transferred from the person (child, &c.) from which it is taken while fresh. Pus, dried, will no more produce an effect. Experiments are made at the hospital at present by Mr. Henry Brietzcke, one of the assistants at the eye department, as to the possibility of preserving different kinds of pus in tubes. The kind of pus which is supposed to produce a mild kind of suppuration is easily enough obtained at a large hospital, but not so, perhaps, in military hospitals, where granulations are most prevalent. The object of the above experiments is to supply others with

any pus desired. The fluid which surrounds the pus-cells seems essential for producing suppuration of the inoculated conjunctiva.

If only one eye be inoculated, the fellow-eye must carefully be kept closed; it may be untied once a week to wash it, taking care to bind it up again; the least particle of discharge from the inoculated eye would be sufficient to set up purulent ophthalmia. This can always be arrested if treated at the commencement.

The following seemed the most effectual mode for keeping the not inoculated eye closed and secure from risk of accidental inoculation. A thick layer of Canada balsam or gum mastic was spread over the skin of the eyelids, then wadding was laid on to the level of the bridge of the nose and margin of the orbit, and retained in position with a light bandage or strapping.

Treatment of the inoculated eye.—It consisted in cleanliness, by washing away the discharge from the eyelids with tepid water every hour, if the pain was very severe; twice a day (morning and evening), if there was moderate or no pain. Washing the eyes twice a day suffices as soon as the acute stage of suppuration has subsided. In severe cases of pannus it seemed desirable to obtain abundant suppuration; the purulent discharge was, therefore, not washed away for one or two days after suppuration had commenced. The lids becoming glued together, the pus accumulates upon the conjunctiva, and seems to occasion a more abundant discharge.

The unsatisfactory results obtained by some persons from inoculation seem in most cases to be due to a desire to check the purulent inflammation. A treatment which tends to check the inflammation (suppuration) arrests the destruction of the pannus, and of the substance which helps to form the granulations, and leaves the case in as bad, or in a worse, condition than it was before inoculation. Perforations of the cornea and changes in the eyelids were not specially attended to while the purulent discharge continued. A case was considered cured when the granulations were destroyed, the palpebral conjunctiva having assumed its smoothness. Operations for artificial pupil, changes in the conveyance of tears, distortions of the lids, should never be attended to as long as the granulations are not destroyed; the latter frustrate all attempts to improve vision, &c., &c.

All cases of granular conjunctivitis can be cured by inoculation; but if the entire or part of the cornea be transparent, the difficulty arises of producing such a suppuration as will destroy the granulations without leading to destruction or perforation of the cornea. In such cases one has to select the pus, taking it from purulent ophthalmia of children of a mild form. All cases

of granular lids might be cured by pus from a gonorrhœa if some means of protecting the cornea were found. Those who adopt the treatment by inoculation ought to be familiar with what are called granular lids. Minute red granulations, giving the palpebral conjunctiva a red velvety appearance, must not be treated by inoculation. The large red, or gray red, or gray or yellow and opaque granulations, are those which will disappear when inoculated.

The term vascular cornea or pannus is applied to a cornea the surface of which is more or less overrun by blood-vessels passing upon it from the ocular conjunctiva. It is one of the results of the morbid action set up upon the cornea, by the contact of the granulations of the conjunctiva and of their secretions. The cicatrices in the conjunctiva caused by scarifications become much smoother and less conspicuous.

In cases where one cornea is vascular throughout, the other transparent in part, both eyes ought to be inoculated, since it has happened that the cornea of the worst eye became transparent and the granulations disappeared, but returned, the secretion from the uninoculated fellow-eye coming again in contact with the inoculated conjunctiva. It is better to cure the granulations in both eyes, to risk one eye and to have one good eye, than to render one cornea transparent, finally to have to inoculate the fellow-eye, and possibly have the cured eye re-inoculated and lost. If both cornea are opaque and vascular, both eyes may be inoculated, and the patient may be treated as out-patient, informing him of the contagious property of the pus. If one eye is bound up, or if a case is inoculated where part of the cornea or the whole of it is transparent, it ought to be kept in the hospital until the chronic stage of suppuration has set in.

The duration of the acute suppuration lasted from three days to six weeks; the chronic suppuration from two to eighteen months. Some cases got well in two, others after eighteen, months, cleanliness being the *sole* treatment.

The symptoms of the acute stage of suppuration commence from three hours to two days after inoculation; they are itching, increased watering, photophobia, then redness and swelling of the eyelids, with chemosis and purulent discharge, reaching sometimes a very high degree, the pus streaming over the patient's cheeks for days; the cornea becomes more vascular, its surface becomes yellow; opaque portions of the vascular webb on its surface slough away, its curve remaining generally unaltered. The pain is sometimes severe, preventing sleep for several nights. If it increases three to four days after the acute stage has set in, a perforation of the cornea is threatening; the

acute symptoms gradually subside, the pain generally first. The acute stage is supposed at an end as soon as the patient opens the eyelids spontaneously.

Among different kinds of pus the following were used:—1. Pus taken from the urethra of a man suffering from gonorrhœa. 1*a*. Pus taken from an eye which had been inoculated with pus 1. 2. Pus from the eye of a child suffering from purulent ophthalmia, its mother having purulent discharge from the vagina at the time the pus was taken from the child's eye. 2*a*. Pus from an eye which had been inoculated with pus 2. 3. Pus from the eye of a child suffering from purulent ophthalmia, its mother having no yellow or suspicious-looking discharge from the vagina at the time the pus was taken from the child's eye. 3*a*. Pus from an eye which had been inoculated with pus 3. 4. Other kinds of pus—*i. e.* from catarrhal ophthalmia, from ophthalmia following operations, &c.—*Guy's Hospital Reports, Vol.* x. *p.* 62.

70.—ON REMITTENT OPHTHALMIA—STRUMOUS OPHTHALMIA OF CHILDREN.

By Henry Hancock, Esq., Surgeon to the Charing-Cross and Westminster Ophthalmic Hospitals, &c.

[Many years ago Mr. Hancock published some papers to show that what is commonly known as strumous ophthalmia does not depend upon that particular condition of constitution.]

The disease described under the titles "strumous," "scrofulous" or phlyctenular ophthalmia, is an affection of simple character, depending upon disorder of the digestive organs, influenced by the age of the patient, and presenting a type peculiar to diseases of the earlier period of life. True strumous or scrofulous ophthalmia is, as pointed out by Jacob, an affection of an entirely different character. Phlyctenular ophthalmia attacks children of all conditions, whether scrofulous or otherwise; it does not appear to be influenced by station in life, nor is it especially restricted to any particular colour of the hair or complexion; it attacks the fat, stout child, equally with the thin, and the highly-fed equally with the child of penury and want. In all cases the principal diagnostic signs of remittent fever are present; more urgent and well marked, it is true, in some instances than in others, but in all they may more or less be traced, if ordinary attention be paid to the subject. The remissions of severity; increase of fever and heat towards night; the subsidence thereof, and accession of perspiration; the eruption about the nose and corners of the mouth; picking the nose and lips; rubbing the eyes; fœtid, sour, and disagree-

able breath; the strawberry tongue, covered with moist fur; the enlarged liver; the tumid, hard, and swollen belly; irregularity of the bowels, sometimes constipated, at others relaxed; the evacuations clay-coloured, or dark, or slimy, and mostly offensive. The tendency to eruptions over the face, head, and body, so invariably present in this form of ophthalmia, bears such strong affinity to the symptoms of the remittent fever of children, that I have long regarded the ophthalmia of children as a disease of the same character, and have consequently discarded the terms "strumous," and "scrofulous," as applied to it, designating it as *remittent* ophthalmia.

The term "strumous ophthalmia," has heretofore embraced a large class of cases. Mere congestion of the palpebral, or of the ocular conjunctiva, with or without phlyctenular or pustular eruption; inflammation of the sclerotica or of the cornea; ulceration; suppuration, or sloughing; interstitial deposit between the layers of the cornea; certain affections of the iris; and in some rare instances, of the retina, if accompanied by intolerance of light, having been classed under this designation. I propose, however, in this and subsequent papers, to consider first, the more simple form, the remittent ophthalmia; secondly the "phlyctenular, or pustular ophthalmia," and lastly, the "strumous."

Remittent ophthalmia is the most frequent and simple, depending upon derangement of the digestive organs; it may attack any child in whom such derangement obtains. It is for the most part confined to the superficial tunics of the eye, and is very frequently accompanied by cutaneous eruptions. It may exist for a great length of time, without producing any serious permanent results. The complaint will often be confined to the conjunctiva of the eyelids, the edges of which are loaded with a viscid secretion. In its more severe form, the disease extends to the ocular conjunctiva, the redness being restricted to one or more fasciculi of superficial vessels, extending from the back of the eyeball to the margin or front of the cornea, where they commonly terminate in phlyctenulæ, which are either absorbed, leaving superficial white specks when seated in front of the cornea; or, suppurating and bursting, result in superficial or deep-seated ulceration, occasionally penetrating the entire thickness of the cornea, allowing the iris to protrude; or, in other cases, destroying a larger proportion of the cornea, and changing its brightness altogether into a yellowish slough. These two latter forms are always succeeded by permanent adhesion of the iris to the cornea, and the formation of a cicatrix, which rarely disappears. The local symptoms in the milder forms, are pain; intolerance of light; redness; and the formation of simple pustules, with increased flow of tears. In

the severer forms, ulceration, or even sloughing of the cornea will sometimes occur. In the majority of cases there is more of discomfort than of actual pain, although in some instances the pain is very severe. It is usually remittent, being absent during the day, recurring at night, and subsiding towards morning. In the early stages the pain is always sharp, darting, and intermitting; but when phlyctenulæ, pustules, or ulceration of the cornea exist, a continuous sensation of grit or sand in the eye, obtains. The intolerance of light is a symptom so prominent and distressing, that many authors have been led to regard it as the cause, rather than the result of the disease. Experience, however, proves the error of this opinion; it is very true that with the subsidence of the intolerance of light a marked improvement in the disease takes place; this, however, is not due to the subsidence of the intolerance of light, but to the removal of the cause which produced both it and the disease, the intolerance of light being merely a symptom of the disease, a sympathetic or functional affection, a morbid sensibility, depending upon disorder of the alimentary canal, and various secretions.

Although permanent and persistent in some, the photophobia is generally remittent; it appears to alternate with the pain, for whereas the latter is less urgent in the morning, and during the day, the intolerance of light is most severe at those times, subsiding towards evening, when the pain becomes more aggravated. The intensity of the photophobia, however, must not be regarded as any criterion of the severity of the disease; the less urgent and serious the malady, the greater, in most instances, will be the intolerance of light. A child may open its eyes when considerable disorganization has taken place, but when the attack is comparatively slight, it will make a great effort to exclude the minutest ray of light.

Treatment.—In the *British Medical Journal*, June 4, 1864, Mr. Cheshire, Senior Surgeon to the Birmingham and Midland Eye Hospital, in advocating the employment of tartarized antimony as a remedy in strumous ophthalmia, observes, "I am aware it has long been the practice of ophthalmologists to administer a single dose of tartarized antimony, as a beginning to the treatment of strumous ophthalmia, &c., &c., but it does not appear to have been resorted to as a remedy, *per se*, for the cure of strumous affections of the eye."

In the same Journal for the 25 June, 1864, Mr. Price, of Margate, in eulogizing Mr. Cheshire's notice, adds, "That the plan of treatment therein recommended, is both little known and little practised, I am fully convinced; and my object in again bringing the subject forward is to endorse the statements

of Mr. Cheshire, in the hope of inducing practitioners to follow this mode of treatment on a more extended scale."

It is very evident that Mr. Cheshire and Mr. Price had either forgotten, or had not read my lectures, published in the *Lancet*, in the year 1852, in which I gave the result of my treatment during several previous years of strumous ophthalmia (so called), by tartarized antimony, in opposition to the then existing treatment of that disease by tonics, and the local application of arg. nitratis, &c. Since the year 1849, I have not only steadily pursued this treatment, but strenuously recommended its adoption by the numerous surgeons who, from time to time visit the Royal Westminster Ophthalmic Hospital. Under these circumstances, I may be excused for again bringing forward the substance of the treatment I have so many years advocated.

The main objects to be steadily borne in mind in the treatment of remittent (strumous) ophthalmia, are, relief of the organs of digestion, and the correction of the secretions. If these are attained, the other symptoms will improve, and the eyes share in the general change for the better; but unless a systematic plan, embracing diet, clothing, good nursing, as well as medicine, be adopted, little benefit will result. As I have before observed, remittent ophthalmia may, as a general rule, always be traced to a disordered condition of the digestive organs, a want of digestive power, an incapability of properly assimilating the food. The liver is sluggish, irregular in its action, and frequently enlarged; the mesenteric glands are commonly increased in size; the secretions are vitiated, and the blood consequently becoming impoverished and impure, the whole system is deranged. The child is rendered pale, weak, and fractious; its appetite is lost, or very capricious, and it is said to be strumous, weak, and delicate; but this condition need not become permanent, if the case be judiciously treated; if it is not at the outset erroneously supposed to depend upon cachexia or debility. The debility is for the most part more apparent than real, and proceeds from irritation, or of oppression rather than of actual weakness. Remove the cause, and the debility will disappear *pari passu*.

I will not here enter upon the local treatment usually resorted to, as I have long ceased to employ it in remittent ophthalmia, excepting where the cornea has given way and the iris protrudes; in such cases, touching the protruding iris with the pointed nitrate of silver and applying the extract of belladonna over the eyebrow are very useful. From repeated trials of the various local remedies recommended, I am convinced that they do more harm than good, causing great suffering without compensating benefit; indeed, children get well much more quickly when they are not used at all. The treatment should commence

with an emetic of tartarized antimony, given as advised by Dr. Mackenzie, viz., in minute doses at frequent intervals, until free vomiting is excited; and this in all cases, however attenuated or however stout the child may appear, the object being to relieve the stomach of its offensive contents and to render its secretions more natural; to correct and restore the secretions of the kidneys, liver, and other glandular structures, and to influence the capillary system generally, so as to improve the condition of the skin and mucous membrane, and allay the morbid excitement of the nervous system.

This is best done by the tartarized antimony given as above, and it is very important that attention should be paid to the mode of its administration. The mere inducement of vomiting, the simple evacuation of the contents of the stomach is not sufficient, unless the medicine by being absorbed into the blood is enabled to produce other results; hence I have not observed anything like the same amount of good to result from sulphate of zinc, nor the ipecacuanha powder, or even from the tartarized antimony when the latter is administered in a single large dose to cause immediate vomiting. The following is the form which I usually employ :—

℞. Antim. tart. gr. iv.; syrup. ℥iv.; aq. cinnamoni ℥iij.; aq. distill. ad ℥viii.

For a child under three years of age, two teaspoonfuls should be given every ten minutes until vomiting ensues; above this age, a table-spoonful should be given at similar intervals. It commonly requires four or five doses to produce the full effect, in some instances more, in a few less. This treatment should be repeated daily, until the intolerance of light begins to diminish, which it will mostly do after the first or second day, although in some of the more obstinate cases, four, or even six days will elapse before the desired result is obtained. When, however, the intolerance of light begins to subside, the emetic should be discontinued, and a powder of calomel and rhubarb, or mercury with chalk, and compound scammony powder every night, or every alternate night until the tongue becomes clean, the abdomen softer and flatter, and the alvine secretions healthy; as these changes are brought about, the eyes will improve if attention be paid to the diet. When the attack is complicated with skin eruptions, aperients will be required for a somewhat longer period. Should the attack of ophthalmia be preceded by measles, small pox, scarlet fever, or any other complaint of a highly depressing character, or if the child has been exposed to excessive want, is much attenuated, and covered with a cold clammy perspiration, calomel, even in small doses, should not be given, except with great caution; in no instance should more than one dose be given without the patient being seen, as should ptyalism

take place, such extensive sloughing of the fauces, gums, and even of the lips and cheeks may ensue as to destroy the child in a very few days. I have known this occur more than once. With such children it is safer to abstain from the use of calomel altogether and to substitute the compound scammony powder, with taraxacum and henbane. When mercury, however, is especially indicated, I always combine it with quinine, taking care not to push the medicine to such an extent as to produce ptyalism.—*Journal of British Ophthalmology, Oct.* 1864, *p.* 35.

71.—TARTARISED ANTIMONY AS A REMEDY IN STRUMOUS OPHTHALMIA.

By Dr. WILLIAM PRICE, Surgeon to the Metropolitan Infirmaries for Scrofulous Children and Adults, Margate.

A short but valuable notice, from the pen of Mr. Edwin Cheshire, appeared in a recent number of the British Medical Journal, on Tartarised Antimony as a remedy in Strumous Ophthalmia. That the plan of treatment therein recommended is both little known and little practised, I am fully convinced; and my object in again bringing the subject forward in these pages is to endorse the statements of Mr. Cheshire, in the hope of inducing practitioners to follow this mode of treatment on a more extended scale.

During the past six years, 109 cases of strumous ophthalmia, occurring in children under fifteen years of age, have been admitted into the Metropolitan Infirmary, at Margate. Out of this number, thirty-eight suffered with photophobia; and twenty-five had either vascular corneæ or phlyctenular ophthalmia. They had been all, or nearly all, treated by the administration of tartarised antimony in small but repeated doses; and, save in a few instances, with the most marked and decided benefit.

My attention was first directed to this plan of treatment in the Paris schools; and the success I there witnessed attending its employment, induced me early to forsake the more routine practice of giving cod-liver oil and tonics. It must not be supposed that I have overlooked the beneficial effects of sea-air and a liberal diet upon the London poor when removed to this salubrious climate; for the cases mentioned have been generally those in which the children had resided some short time by the sea-side. Amongst a large number of private cases annually coming under my care, I cannot call to mind a single instance in which tartarised antimony has been prescribed. From this circumstance I gather, too, that surgeons rarely resort to, or do not sufficiently appreciate its singular efficacy in certain cases of ophthalmia occurring in scrofulous subjects, in the adult as well as in the child.—*British Medical Journal, June* 25, 1864, *p.* 685.

72.—INOCULATION AND SYNDECTOMY.

By GEORGE LAWSON, Esq., Assistant Surgeon to the Royal London Ophthalmic and Middlesex Hospitals.

The number of cases of severe granulation of the lids, accompanied with vascular corneæ, which have been treated by the inoculation of purulent matter at the Hospital, a short account of which, by Dr. Bader, appeared in the last number of the Ophthalmic Hospital Reports, prove indubitably the success of this line of treatment. It is, however, necessary that the disease should be sufficiently advanced before such a mode of dealing with it can with safety be resorted to. The greatest success has resulted in those cases, where the lids were not only severely granular, but where the whole cornea was completely vascular, semi-opaque, thickened, and the pupil scarcely visible; where, in fact, there was little if anything to lose, and all to gain. Such eyes will bear strong purulent matter, as the yellow pus from an infant with purulent ophthalmia, whose mother may have suffered from gonorrhœa, and after a rather long course of suppuration, will almost invariably recover, and good useful sight will be regained.

In the treatment of granulations by inoculation, much discrimination is required in the selection of the cases, and in the quality of the pus which should be used.

It is best that the pus should be always in the first instance taken from the eye of an infant suffering from purulent ophthalmia, as it seems to me, that although gonorrhœal matter may in extreme cases answer very well, yet there is always a certain amount of risk as to its purity, whether some syphilitic virus may not accompany it, for since a chancre in the urethra is occasionally associated with gonorrhœa, it is difficult, if not impossible to say, that the patient from whom the matter is derived, is free from it. I prefer for this reason always to take it from the child.

The strength of the pus with which you wish to inoculate may be judged of: 1st, by the colour, and 2nd, by the severity and duration of the inflammation which it has excited in the eye from which it is taken. The yellow pus is always more active than the whitish discharge so commonly seen. Again, the period of the disease at which the pus is taken influences materially the amount of inflammation and suppuration it is capable of setting up. Pus from the eye of an infant in the early and most acute stage of purulent ophthalmia, will produce much more serious effects than that taken from the same eye at a later period of the disease, after it has undergone some treatment, and is on the decline.

Another point of practical importance is settled by the experience of the hospital.

Pus fresh from the eye of an infant gives rise to a more moderate suppuration with less œdema of the lids than when taken from an eye which is suffering from inoculation. The strength or virulence of the pus seems to increase in its travel through one or two eyes, so that if A is inoculated with mild purulent matter, the pus from A's eye will produce more intense opthalmia in the eye of B than the original pus which inoculated A.

The most certain and effectual cure of severe or otherwise intractable granular lids undoubtedly is inoculation.

Many other remedies give great but temporary relief, and many cases, in course of time get, to a certain extent, well; but the only remedial agent which will for a certainty destroy the granulations and leave the lining membrane of the lids smooth within a definite period of time, is inoculation.

Now from experience we know that in the very severe forms of granulation, where the cornea has become a pannus and but little more than perception of light remains, this line of treatment is specially applicable, and that the results are most satisfactory, but in the large majority of patients who apply for hospital relief, the disease is not so advanced; and it is a question of serious moment whether it is not possible so to prepare the eye by previous treatment, that the milder cases may with safety be fitted for inoculation. This, I think, has been partially accomplished, and the cases I have now to record show that if a large portion of conjunctiva has been removed from around the cornea (syndectomy), and the eye allowed thoroughly to recover, that the operation of pus in such an eye is considerably limited. This no doubt is owing to the purulent inflammation being principally confined to the conjunctiva lining the lids, for by the operation of syndectomy, one eighth of an inch of conjunctiva and sub-conjunctival tissue has been removed from around the cornea, so that not only is there a great diminution in the quantity of the mucous membrane on the globe which can become inflamed, but the sub-mucous tissue has also been destroyed, and a firm broad cicatrix spreads aound the cornea, and serves as a barrier to arrest the extension of the suppurative action to it from the conjunctiva.

Case 1.—*Granular lids, with the upper half of the Cornea vascular, treated twelve months ago, by Syndectomy, but without benefit—Inoculation—satisfactory Result.*—E. R., æt. twenty-four, has suffered from granulations of the right lid for the last four years. Twelve months ago, on account of vascularity of the upper part of the cornea, the operation of syndectomy was performed, and a broad band of conjunctiva, with the sub-conjunctival tissue removed. She made a good recovery, and for

a few weeks after it appeared as if she was going to derive benefit from the operation; the vascularity of the cornea certainly diminished, but the granular state of the lid remained unchanged. She continued occasionally to attend the hospital as an out patient, and used a mild astringent lotion. The vascularity of the cornea, in four or five months after the operation, was as great as before, and there was considerable photophobia. Steadily the eye became worse, and on September 17, 1863, she was again admitted into the hospital.

Her condition was then as follows:—The right lid, granular. The upper two-thirds of the cornea rough and vascular, but the lower one-third almost clear.

Sight.—Able to count fingers, but not to read any type. There is great photophobia and lachrymation.

September 29th.—The eye was inoculated with mild pus from the eye of an infant who had been under treatment for purulent ophthalmia.

30th.—Twenty-four hours after the inoculation the eye began to water and the lid to swell.

October 1st.—Eyelid much swollen; free purulent discharge. Has had a great deal of pain in the eye during the night.

4th.—Profuse discharge from between the lids; complains of a good deal of pain.

The purulent ophthalmia thus started, was allowed to proceed uninterruptedly, no local astringents were applied to arrest the discharge. The patient was only allowed to wipe the eye with a piece of linen dipped in tepid water, and keep the eye clean.

On October 20th.—The purulent discharge had sufficiently abated to allow her to leave the hospital, and attend as an out-patient. She had great photophobia, but very little pain. The cornea is entire.

After leaving the hospital, the discharge gradually ceased, and the sight steadily improved.

January 29th, 1864.—The patient to-day came to the hospital, and the following is her state:—

No vascularity of the cornea. It presents a general smooth surface, but is very slightly clouded. The lid is still granular, but very little when compared to its condition previous to inoculation.

She is able to read No. 12 of Jaeger's Test Types.

The eye will continue to improve, and probably the remaining granulations will diminish until they ultimately disappear. The cause of their not having been entirely destroyed is probably that the pus was not quite strong enough, and the period of suppuration rather too short.

Case 2.—Granulations of right Eyelid, Cornea Vascular, but with clear Interspaces—Syndectomy, followed two months afterwards by Inoculation—satisfactory Result.—S. W., æt. twenty-four, had been under treatment from time to time for eight years, on account of a granular condition of the eyelids, accompanied with entropion. For the relief of the entropion, the eyelashes had at last been excised, but the granulations of the right eyelid resisted all treatment, and the cornea had become rough, uneven in its curvature, and vascular, but with tolerably clear interspaces between the larger vessels.

In November, 1862, she was admitted into the hospital, and as the eye did not seem a favourable one for inoculation, Mr. Bowman performed syndectomy, removing a broad band of conjunctiva from around the cornea, and all the subjacent cellular tissue. At this time she was able to count fingers and see large objects, although she could not read any type.

After the first effects of the operation had passed away and the wound had healed, she certainly saw better, and could make out letters of No. 20. But this improvement was of very short duration, for the eye soon became very irritable, and the cornea more dull, and after a lapse of between three and four months, her sight was decidedly worse than before the operation.

She continued much in the same state until August, 1863, the amount of irritability of the eye would vary, at one time better, at another worse, but the vision remained unaltered. She could see an object moving in front of her right eye, but she could not with any certainty even count fingers at three or four inches distance.

August 21, 1863.—Was readmitted for the purpose of inoculation. The eye was inoculated on a Friday, at 12 o'clock, with strong pus from a patient in the house undergoing inoculation.

At 11.30 on the following day the lid began to swell. Great œdema followed, but the purulent discharge was not at all excessive. After eight days, the swelling of the lid and the purulent discharge began to diminish, and at the end of the fourth week she was made an out-patient. At the time she left the hospital, there was still a good deal of discharge from between the lids. No treatment was adopted to arrest the purulent ophthalmia, it was allowed to run its course, but the patient, after the second or third day, was permitted to wipe away, with a piece of linen dipped in tepid water, the discharge from the lids, and so keep them clean.

February 11th, 1864.—I saw the patient this morning. The membrane lining the lid of the inoculated eye is perfectly smooth, and the sight has so much improved that she is able to read No. 12. The cornea is slightly nebulous but no longer vascular.

From long-continued irritation, its curvature is manifestly altered, and hence the benefit which her sight should derive from having regained so much of the transparency of the cornea is greatly curtailed.

Case 3.—Granulations of both Eyelids with Vascular Corneæ—the Left Eye treated by Inoculation—the Right Eye first by Syndectomy, and then by Inoculation—good Result.—The following case is specially interesting, as both eyes were almost in a similar condition when she first applied to the hospital, and two different modes of treatment were adopted. The right eye was inoculated, and the result was most satisfactory.

On the left eye, after an interval, syndectomy was performed, but with only temporary relief. The granulations continued as before, the cornea became a perfect pannus, and inoculation was then resorted to. Strong pus was used, but the activity of the purulent ophthalmia was much less than in the right eye, sufficient however to destroy the granulations, and to restore to the patient a useful eye.

Ellen R., aged twenty-one, was admitted into the hospital in July, 1862, in the following condition:—

The lids of both eyes very granular, the granulations large and fleshy. Both corneæ completely vascular. No photophobia. She could guide herself about, but was unable to discern features or read any type. She could merely distinguish an object in front of her.

The left eye was inoculated on 5th July, 1862, with pus from a child with purulent ophthalmia.

Severe inflammatory action followed with great œdema of the lids and purulent discharge. It was allowed to run its course unchecked, and when the activity of the inflammation had subsided, she was made an out-patient.

In October of the same year, the report states that the eye is perfectly quiet, the conjunctiva of the lids smooth, and she is able to read words of No. 6 Jaeger.

On October 10th, 1862, she was re-admitted for the treatment of the right eye.

Since the left eye had been inoculated, this eye had continued to get worse, and she had now little more than mere perception of light.

Syndectomy was performed, and one-eighth of an inch of conjunctiva and sub-conjunctival tissue removed from around the cornea, and close up its margin.

Free suppurative action followed this operation, and a semi-purulent discharge continued for many weeks after she left the hospital.

On December 4th, the report states that the discharge still

continues. The sight is decidedly improved, and she is just able to count fingers.

So far the progress of this case was reported in the last number of "The Ophthalmic Hospital Reports," p. 64. For about two months afterwards the eye slightly but slowly improved. The discharge entirely ceased, and for a time she ceased her attendance at the hospital.

In July, 1863, she again became a patient. The eye had relapsed into its former state; the granulations were large and abundant, and the cornea a perfect pannus. She was unable with that eye to read any type or to distinguish any object.

On August 8th, she was re-admitted as an in-patient, and the eye inoculated with strong purulent matter from the eye of a man then undergoing the same treatment.

Twenty-four hours afterwards, free purulent ophthalmia was established. The discharge was much less in quantity than from the other eye when inoculated, but the lid was much swollen.

On the 29th, she left the Hospital. The lids were then in their normal state, the eye free from all pain. A moderate discharge still continuing, and able to read words of No. 20.

She has steadily improved, and, February 15, 1863, the report is, she can read No. 12, the cornea is cloudy, but no vessels to be seen on its surface. The lining membrane of the lid smooth, and the eye quite free from irritation. This eye will continue to improve.

She is able to do needle-work, and with the left eye to read a book, with No. 6, or Bourgeios type.

Case 4.—*Granular Lid of the Right Eye treated with Syndectomy, and afterwards by Inoculation.*—J. M., aged twenty-eight, admitted into the Hospital under Mr. Bowman, November 24, 1863. He was an old soldier, and went through the Crimean campaign. His eyes were first inflamed when in the Crimea, and since then they have never been well. The left eye has partially recovered, but in the *right* the conjunctiva of the lid is granular, the cornea opaque and vascular, the ocular conjunctiva congested, and he has great photophobia. He has perception of light, but he cannot count fingers.

November 24.—Mr. Bowman performed syndectomy, and removed a portion of conjunctiva from around the cornea, with all the corresponding subjacent cellular tissue.

25th.—Has had but little pain, and slept well.

27th.—Complains of pain over the brow. There is no discharge.

December 1st.—The wound having healed, the eye to-day was inoculated with pus from the eye of a child four weeks old,

suffering from purulent ophthalmia with thick purulent discharge, but the whole cornea quite clear.

4th.—Lids much swollen; profuse discharge.

8th.—Swelling of lids diminished; discharge less.

15th.—Discharge very slight; cornea becoming more clear; can count fingers. Left the hospital to attend as an out-patient.

January 15th, 1864.—Called to-day to show himself at the hospital. Slight haziness of the cornea; no vascularity; reads No. 8 Jaeger without glasses.—*Ophthalmic Hospital Reports, Vol.* iv., 1864, *p.* 182.

73.—CLINICAL REMARKS ON THE VALUE OF BELLADONNA IN THE TREATMENT OF IRITIS.

By JABEZ HOGG, Esq., Assistant Surgeon Royal Westminster Ophthalmic Hospital; Editor of the Journal of British Ophthalmology.

After a careful examination into the relative value of the various agents for the cure of iritis, and opium in particular, I believe I am perfectly justified in saying that the chief value of the latter consists in its sedative or narcotic principle, when employed in sufficient doses, for the relief of the pain attendant upon the attack. If we take the trouble to examine a little closely into the published cases of alleged cures without mercury, or with opium, we shall find, remarkably enough, that in nearly all, at some period of the treatment another remedy, belladonna, has been employed, perhaps applied externally, in combination with some other potent drug. For example—on looking over the cases published by Dr. Williams, of Boston, we at once notice the secret of his success lies in this practice—he invariably commences the treatment "with an *instillation of a solution of atropine*;" this is ordered to be repeated until complete dilation of the pupil is produced: at the same time iodide of potassium or some other equally efficacious remedy is prescribed in full doses. What better treatment in the majority of cases could be adopted? There are other practitioners, we fear, who, while professing to cure by the agency of morphia alone, do not possess the honesty of Dr. Williams, but are most careful to conceal what they employ in conjunction with their boasted remedy.

It is generally conceded that in all cases of iritis, the greatest possible danger to be apprehended is in the formation of adhesions between the iris and the capsule of the lens, posterior synechia, or between it and the cornea, anterior synechia; the latter is not of very frequent occurrence. In the acute stage of the attack lymph is effused, and the pupillary space wholly or partially obliterated in a comparatively short time, and thus vision will be quickly lost even should the choroid

and retina escape the destructive process set up by the iritis. In milder attacks the danger of synechia and a fixed pupil cannot be always avoided, more especially if the attack is unheeded by the patient, or if not seen by a medical man during the first thirty or forty hours. Even if promptly attended to, the patient may not escape with a perfect iris; and therefore the case can only be said to be cured if no adhesions or irregularity of the pupil remain after the attack has been entirely subdued.

It is quite obvious, indeed, that our chief care in the treatment of this malady must be directed to preserve the iris intact, free from the smallest deposit, and quite circular. To fulfil this indication we must, from the very first, keep the pupil well dilated, and thus place it as much as possible out of harm's way and in a state of rest. To expect to effect this by any so-called constitutional remedies, without at the same time employing belladonna or atropine, is to neglect a most important point of treatment and jeopardize your patient's vision. Whereas by a liberal use of belladonna or a solution of atropine, (2 to 4 grs. to the oz.,) or a fiftieth part of a grain of a very finely levigated powder of the sulphate of atropine, applied to the conjunctiva of the lower eyelid, and repeated at intervals of three or four hours, until the pupil becomes fully dilated, and keeping it in this condition, we may I believe, almost adopt any kind of treatment, or even leave the patient to careful nursing, particularly if the case be one of a non-specific, uncomplicated nature. After the pupil has been fully dilated, the further application of atropine once daily is quite sufficient to maintain the full effect and keep the iris free from danger; but if lymph or interstitial deposits can already be detected, it will be found to be much more difficult to dilate the pupil, and it is under these circumstances that our good old remedies, mercury, iodide of potassium, &c., come into play with the happiest results, and will not only preserve sight, but save the iris from complete disorganization.

In England the value of mydriatics in the treatment of iritis has been very generally recognized, and always highly esteemed by our ophthalmic surgeons from a very early period. This was not the case in Germany, and some other countries. Dr. Mackenzie in his early writings says: "Belladonna ought to be employed in every case, and in all stages of the disease. The usual mode of employing it is in extract, moistened to the consistence of cream,* and liberally painted on the brow and eyelids morning and evening. As it is during the night that the disease appears to make most progress, and as during sleep

* Glycerine is the best vehicle for dissolving or thinning the extract, and possesses great advantages over water; it keeps moist for a long time when applied to the brow.

there is a natural closure of the pupil, which must favour the permanent contraction which iritis tends to produce, the evening is evidently the most important time to apply belladonna. After blood-letting it will be found to act much more powerfully in dilating the pupil.

"As soon, in general, as the inflammation has subsided in any considerable degree, and the fibres of the iris have become somewhat freed from effused lymph, the pupil will begin to expand, and even in neglected cases, where it has been allowed to become almost obliterated, the continued use of belladonna for months is sometimes attended by a gradual dilation of the pupil, an elongation of the threads that bind it to the capsule, and a corresponding improvement in vision. After the acute inflammation is gone (subdued by extracting blood, &c.), a filtered aqueous solution of the extract of belladonna, or a solution of the sulphate of atropia, may be dropped into the eye morning and evening; applied thus to the conjunctiva, belladonna has more effect than when painted on the skin, and sometimes breaks through adhesions when smearing the outside of the eyelids has failed."

So little appears to have been known in Germany of the employment of mydriatics, that up to a very recent period we find it stated of a Prussian quack oculist, that he derived a large annual income from patients who literally flocked to him for the cure of cataract, &c. His treatment chiefly consisted in the application of belladonna drops to the eye, belladonna plaisters to temples, and mercurials. He kept his secret by supplying his patients with drugs from his own store. It was therefore, high time some one better qualified for the task should fully satisfy himself of the value of belladonna; and accordingly Dr. Graefe, in 1856, published a paper in which he communicates the results of his experiments with mydriatics in the treatment of iritis, "the dangers of which," he says, "in general have materially diminished since the introduction of a bold use of mydriatic remedies in the acute form."

[There are some people in whom great irritation follows the use of this drug. No matter what preparation is made use of the distress to the patient is equally great.]

In such cases (of iritis), as well as where there is any intolerance of the drug, I am in the habit of taking away a small quantity of blood from the temple by cupping, or by leeches applied either to the nose or lower eyelid: and should this fail, to paracentesis or division of the ciliary structures; especially the latter where there is diffuse cloudiness of the aqueous humour. Many of these to-be-apprehended evils are in part, if not wholly due to some impurity of the drug; at other times

to the careless preparation of its solution, such as, dissolving the atropia in the strongest spirit of wine, or adding more spirit than is actually wanted to facilitate its perfect solution in the distilled water. Again sometimes very strong solutions are employed, which in my opinion are highly objectionable. In no case have I found it necessary to exeeed 4 grs to the oz., and more frequently I employ a 2 gr. solution. Nothing, indeed, answers so well as the latter: and if this cannot be borne, we shall find it advantageous to apply over the brow an ointment of the sulphate of atropine, or the belladonna liniment of the British Pharmacopœia, both of which are efficient preparations. Their action is of course much slower, but in peculiar cases this is decidedly an advantage over the effects produced by the more rapidly acting solutions, which may certainly be classed among the abuses of this valuable agent in those peculiar forms of eye disease requiring the application of mydriatics to affect the movements of the iris.—*Journal of British Ophthalmology, October*, 1864, *p.* 54.

74.—ON EXTRACTION OF SOFT CATARACT BY SUCTION.

By T. Pridgin Teale, Junr., Esq., M.A., Oxon., Surgeon to the Leeds General Infirmary.

During the last three or four years the treatment of soft cataract by "linear extraction" has to a great extent displaced the older and more tedious method of "solution."

In the latter method the surgeon, having broken up the lens with a needle, trusts to the natural process of absorption for removal of the opaque matter. In the former, either finding the lens completely opaque and soft, or in the case of partial cataract, having by a previous operation induced a cataractous condition of the whole lens, he proceeds at once to extract it through a linear wound in the cornea,—in fact, he coaxes out the softened lens through a small opening, by means of the curette.

When the lens is nearly diffluent, it runs readily along the groove of the curette, and the operation is easily completed. Sometimes, however, although opaque, the lens is of firmer consistency, and does not readily escape along the groove. In this case it requires slight pressure to be exerted on the globe to aid its expulsion, and sometimes even the repeated introduction of the curette. Finding this difficulty in one or two of my own cases, in the autumn of last year I was led to inquire whether the principle of suction might not be made use of in withdrawing from the eye through a small wound all such cataracts, whether

traumatic or spontaneous, as have neither a hard nucleus from old age nor have undergone calcareous degeneration. I believed, moreover, that if the posterior capsule could be thoroughly cleansed from all opaque matter, without undue violence to the eye, there would be much less risk of inflammatory mischief after linear extraction, and that one of the chief sources of opacity of the posterior capsule would be removed. Having therefore satisfied myself by experiment that the softer portions of even a healthy lens could be sucked through a fine tube, I requested Messrs. Weiss to make for me a suction instrument, which, being modelled upon the ordinary curette, I named a "suction-curette."

The suction-curette consists of three parts; a curette, a handle, and a suction tube.

The *curette* is of the size of the ordinary curette, but differs from it in being roofed in to within one line of its extremity, thus forming a tube *flattened* on its upper surface, and terminating, as it were, in a small cup. The curette is screwed into the "handle."

The *handle* receives the curette and is hollow for a short distance, thus being a continuation of the tube of the curette. Passing out at right angles from this portion of the handle is a further continuation of the tube, to which the "suction-tube" can be fixed.

The *suction tube* is a piece of india-rubber tubing, 10 or 12 inches long, having an ivory or metal mouthpiece at one end, and fitting on to the projecting part of the handle by the other.

Details of the operation.—The operation by suction which I have adopted is founded upon, and is essentially a modification of, "linear extraction," the principles of which have been worked out by Mr. Bowman, and have been clearly and fully described by Mr. Critchett and Mr. George Lawson.

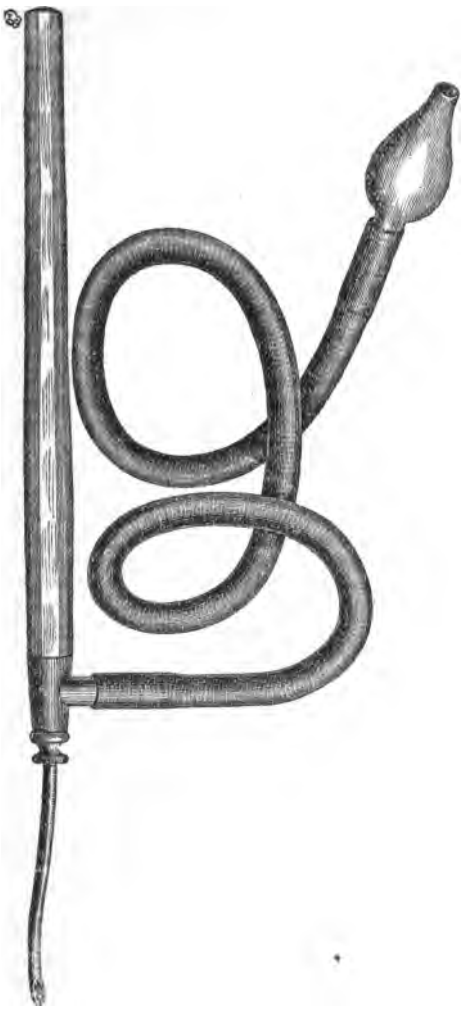
First stage: *The efficient rupture of the anterior capsule.*—The pupil having been dilated by atropine, and the eyelids fixed by the stop-wire speculum, the anterior capsule of the lens should be very freely torn open by two needles passed through the cornea from opposite sides. In carrying out this step the surgeon should bear in mind that its object is not merely to liberate the cataract, but also to ensure such a tearing up of the anterior capsule that it may curl back from the area of the pupil and be lodged behind the iris. At the same time he ought by all means to avoid injuring the *posterior capsule:* a caution to be especially remembered in cases where the cataract is dwarfed and the anterior capsule tough, or where, in traumatic cataract, the lens has been much reduced in bulk by absorption. If the operator wishes to avoid the use of the two needles, he may rup-

ture the capsule at a later stage by introducing through the corneal opening made for the curette the hook used in extraction of hard cataract. The two needles, however, give more perfect command over this important step in the operation.

Second stage: *The opening in the cornea.*—Having withdrawn one needle, and steadying the eye by means of the other, the operator should next make an opening in the cornea for the admission of the tubular curette of the suction instrument. For this purpose a broad needle has been made for me, by Messrs. Weiss, of such a breadth as to make an opening of the exact size required for the curette. The needle should enter the cornea opposite the margin of the pupil when fully dilated, and, passing somewhat obliquely through the laminæ of the cornea, should make a valvular opening, in order, firstly, that it may not be too central and leave a scar in front of the pupil; secondly, that it may not be too near the attached margin of the iris, and thus favour its prolapse and adhesion to the wound; and thirdly, that the curette, when introduced, may not rest upon nor bruise the iris.

Third stage: *The removal of the cataract by suction.*—Having carefully introduced the curette (if it hitches in traversing the corneal wound, it may easily be disengaged by being turned edgeways) the surgeon should hold the open end of the tube steadily within the area of the pupil, gently burying it in the opaque material. The suction power may then be applied, and regulated in degree as the opaque matter runs off into the tube. As soon as the pupil is clear, the curette may be *carefully* depressed towards the posterior capsule in order to ascertain whether any opaque matter remains, but it should not on any account be swept before or behind the iris. If the suction be continued after the opaque matter has been removed, the cornea is drawn down over the open end of the curette, and blocks it up, thus preventing the iris from being sucked into the instrument and injured.

If the operation has been efficiently performed, it will be found that the cataract has been completely withdrawn from the eye, through an opening in the cornea no larger than would admit the common curette, without any injury to the iris, without rupture of the posterior capsule, and with such complete division of the anterior capsule that it has disappeared completely behind the iris. It will be also found, I think, in the majority of such cases, that recovery is most speedy, that the operation is followed by little or no irritation of the eye, that the patient on the eighth or tenth day can read No. 1 (Jäger), and that the conditions which usually produce opacity of the capsule have been provided against.



MR TEALE'S SUCTION-CURETTE.

The foregoing rules apply to a simple case of complete soft cataract. They are also applicable, with slight modification, to cases of traumatic cataract of recent occurrence. In these cases, however, it is necessary, in the first place, to be very careful to tear open completely the anterior capsule which may have been previously ruptured in the accident producing the cataract; and, in the second place, to bear in mind that the posterior capsule may also have been torn through. Should this have occurred, the suction operation will be complicated by the admission into the anterior parts of the eye of the vitreous humour, which would tend to pass through the tube more readily than the denser material of the cataract. When such a defect occurs, it is sometimes possible, by careful management of the curette, to withdraw the opaque lens without at the same time drawing off a serious amount of vitreous humour.

Another complication may arise—namely, partial cataract, in which the nuclear portions of the cataract are opaque, and the cortical portions are healthy, tenacious, and adherent to the capsule. This difficulty must be met in the same way as in "linear extraction"—by the preliminary operation of puncturing the anterior capsule, so as to admit the aqueous humour into the structure of the lens, and so to cause its disintegration. It may be possible to withdraw by suction even a partially sound lens without the preliminary disintegration; but I have not yet attempted to do so, not from any difficulty in drawing such healthy lens through the tubular curette, but because, when the peripheral parts of the lens are transparent and adhere to the capsule, it is hardly possible to ascertain when the capsule has been completely cleansed from lenticular matter

Another class of cases presenting difficulties is that in which a soft cataract has become wasted and calcareous, or partly so. In such cases the solid portions will not pass along the tube of the curette.

The following points seem worthy of notice:

The extreme point of the curette should be well rounded, and not sharp.

The *cup* (open extremity) and the *tubular portion* of the curette should be of nearly equal calibre, so as to pass readily through the small opening in the cornea.

The curette should be made with a *broad-milled rim* in front of the screw, to facilitate the screwing into the handle.

On former attempts to extract Cataract by Suction, and their failure.—When I first devised the suction-curette, I was under the impression that I had hit upon a new idea, and that the proposal was original. By the kindness of several friends, however, I have been directed to accounts of various previous

attempts to apply the same principle to the extraction of cataract.

The Persians, ages ago, are said by Avicenna to have sucked out cataracts through a hollow needle. How far they succeeded I am not able to state.

In 1847, M. Laugier invented his "aiguille à pompe," a hollow needle fixed in a syringe, apparently like that now in use for subcutaneous injection. Its use is discussed by M. Desmarres. The needle having been thrust through the sclerotica, vitreous humour, and posterior capsule, and lodged in the centre of the lens, the suction was applied by means of the syringe in the handle of the instrument. If the cataract were fluid, it was drawn into the instrument; the pupil became clear, and sight was immediately restored. If the cataract were not fluid ("et la cataracte liquide est fort rare"), the vitreous humour was drawn out, the cataract was left *in situ*, and the eye collapsed. This misadventure was followed by internal inflammation of the eye, and in consequence the operation was condemned. "En résumé, l'opération de la cataracte par succion est abandonnée." Failure in this operation was to be expected from using the needle of the syringe as the piercing instrument, and from traversing the sclerotica and rupturing the posterior capsule, which ought to have been preserved as the barrier between the cataract and vitreous humour.

Again, M. Blanchet brought forward another method of extracting cataract by suction. Having dilated the pupil, he made an opening in the cornea with a broad needle, through which he introduced a small tube with a flageolet-like mouth attached to an Anell's syringe. With this blunt tube he pierced the capsule of the lens; and if the cataract proved soft, he pumped it out through the tube by working the piston of the syringe. The main defects of this plan of M. Blanchet were—first, the attempt to puncture the anterior capsule with a blunt instrument, thereby using unnecessary force in reaching the cataract; and secondly, the imperfect opening of the anterior capsule, whereby the capsule remained in the area of the pupil, and, becoming opaque, rendered a secondary operation necessary.

On Suction Instruments.—The original suction instrument which Messrs. Weiss made for me consisted simply of a tubular curette fixed in a handle, to which a small india-rubber tube* with a mouthpiece is attached. The flexible tube is of such a length as to reach from the mouth of the operator to the curette when held in the eye.

* The idea of the flexible tube was probably suggested to me by reading an article by Mr. Greenway, of Plymouth, in which he describes a suction instrument for making artificial pupil.—*Medical Times and Gazette*, Dec 15, 1860.

Shortly afterwards Messrs. Weiss made, at the suggestion of Mr. Bowman, a modification of this instrument, in which the suction power is applied by an ingenious mechanism in the handle, so that the hand which holds the curette controls the suction. Mr. Bowman also inserted a piece of glass tube between the curette and the handle, to enable the operator to watch the result of the suction.

A third instrument has been suggested and made for me by Messrs. Weiss, which is simply a light glass tube with the tubular curette fixed at one end, and the flexible tube with a mouthpiece at the other end.

A fourth instrument has been made for Dr. Bader, of Guy's Hospital, by Krohne, of Whitechapel, and is thus described by Mr. Lawson:—"The suction-power is a small, hollow india-rubber ball, placed at the extremity of a tube which terminates in a glass tubular curette. Pressure is made on the ball with the hand to expel the air from the tube, and its readmission is regulated by a well-contrived stop apparatus placed close to the curette. After the air from the ball has been expelled and its readmission prevented by closing the stop, the curette is introduced into the eye, and the amount of suction is regulated by a little trigger connected with the stop apparatus within."

Having used the first three forms of instrument I have found them to do their work perfectly; and I have no doubt that Dr. Bader's is at least equal to them. On the whole, perhaps from having used it more frequently, I prefer the original curette (with the addition of the glass tube), as the suction is more immediately at command when applied by the mouth, and the instrument can be guided with greater delicacy when the hand is not fettered by applying the suction power.—*Lancet, Sept.* 24, 1864, *p.* 348, *and Ophthalmic Hospital Reports, Vol.* iv., *p.* 149.

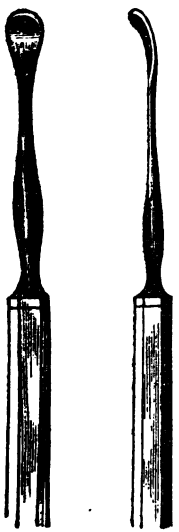
75.—DESCRIPTION OF A NEW INSTRUMENT FOR THE EXTRACTION OF CATARACT.

By G. CRITCHETT, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[The object of the present paper is to bring before the notice of the profession a little instrument lately contrived for the extraction of cataract. Mr. Critchett calls the little spoon recommended, the "Vectis Spoon".]

Some time ago an important modification in the usual method of extracting a cataract was proposed by Schüft of Berlin, which I must briefly describe:—The eye having been exposed by an ordinary wire speculum and fixed, a keratome, or spear-

shaped knife, is introduced near the margin of the cornea and made to traverse the anterior chamber so as to form a slightly curved slit or opening, about three and a half lines in extent; a portion of iris is then drawn through the corneal opening and cut off. The capsule of the lens is freely opened, and then the most important and critical part of the proceeding commences—viz., the removal of the lens. This he proposed to accomplish by a peculiar form of spoon with perpendicular dished edges. This spoon is carefully introduced behind the lens and then withdrawn so as to bring away a spoonful of lenticular matter; and this proceeding is repeated until, as far as possible, the entire cataract is removed. If this can be accomplished without the loss of vitreous humour, without bruising the iris, and without leaving fragments of the opaque lens in the eye, and probably concealed behind the iris, I am strongly of opinion that the chances of success are decidedly greater, and the anxieties connected with the after-treatment of the case far less, than when the old method of extraction by means of a large semicircular flap is employed. Some considerable experience of this operation, dating back from its first proposal by Schüft, whilst it has convinced me of its great value in many cases, has also impressed upon me several important objections and sources of failure, most of which are removed by the form of spoon that I wish to substitute. In the first place, Schüft's method is inapplicable to the hard amber senile cataract: it is impossible to pass the thick spoon behind the posterior surface of the hard cataract without rupturing the hyaloid membrane; and even if this were accomplished, it would be scarcely possible to remove a bulky hard lens, together with a thick spoon occupying considerable additional space, through a slit in the cornea. In the second place, even in cataracts of medium density, there is often considerable difficulty in passing this form of spoon behind the lens; it is apt to become early entangled in the substance of the cataract before it has passed behind its posterior surface, to break it into fragments, and to *push portions into the space behind the iris*, where they remain concealed until the aqueous humour gradually floats them into the pupil, where they excite irritation, and either retard the progress of the case or even



seriously compromise the eye. Such being some of the more serious objections to this form of spoon, I was led to adopt what I consider to be an important and valuable modification. The indications were as follows:—An instrument that by its form would glide between the posterior surface of the cataract and the hyaloid membrane without resistance and without becoming entangled in the substance of the former, that would adapt itself accurately to the posterior surface of the lens, and that on its gradual withdrawal would bring the cataract, or at any rate the firm nuclear portion of it, away unbroken and without taking up more space than a thin metallic layer. A glance at the peculiar form of the Vectis Spoon (see figure) will show that these three important indications are accomplished. The thin edge facilitates greatly the gliding of the instrument behind the cataract, as it offers no resistance whatever, but makes its way as a boat moves through the water; having passed behind the cataract it forms a concave bed, in which it may rest, and to which it accurately moulds itself; and when the withdrawing movement begins, the edge, which offered no resistance as long as the instrument was passing behind the lens, now slightly imbeds itself in its substance and earns its name of "Vectis" by drawing the cataract easily and surely through the corneal opening. I have now employed this instrument on several occasions for some months, and, as a practical man, I am strongly impressed with its value and with its great superiority over the Schüft spoon. It enables us to deal with all varieties of cataract, however dense (I do not of course include soft cataracts), and I venture to predict that when this mode of operating is fully understood, the safety and facility in its performance will be recognised as so much increased by the Vectis Spoon, that the old method of flap extraction will be nearly, if not entirely, superseded.—*Lancet, June* 11, 1864, *p.* 666.

76.—A CASE OF CONGENITAL CATARACT TREATED BY IRIDESIS, IN WHICH SOME MODIFICATIONS WERE INTRODUCED IN THE OPERATION.

By G. CRITCHETT, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[Cases illustrating the method of practice pursued in the case of cataract related in this paper have been published before, by Bowman, Hulke, and others; and iridectomy has been employed in similar cases, by Von Graefe.]

It becomes an interesting practical point to determine whether the formation of an artificial pupil in nuclear congenital cataract places the patient in a more advantageous position than if the cataract were removed, and if so, whether iridesis or iridec-

tomy is the more useful operation. It is also necessary to ascertain, as precisely as possible, the limits and exact conditions under which the method of proceeding is indicated, rather than the somewhat more severe and radical method of removing the cataracts. I am induced to bring the following case before the notice of the profession, because it presents some points of peculiar interest, and because, in the course of the treatment adopted, it brought out some important practical results, that may be of use in determining the questions to which I have in the above remarks drawn attention. Early last year, 1863, a young gentleman, the son of a clergyman, æt. twenty-two, consulted me respecting his sight. The account that he gave of himself was as follows—I quote his own words :—"As far back as I can remember I have been conscious that my sight was defective, that of the right eye has always been the worst, indeed I cannot recollect that the right eye has ever been of any use to me. I knew my left to have been always defective from the fact of never having been able to distinguish the features of any person with their back against a strong light, the face of a person so placed having always appeared to me perfectly black. I noticed the same effect in looking at a powerful lamp, beyond which I could see very little without shading my eyes with my hand. In the dusk while walking I frequently ran against objects, and a street lamp only made the surrounding gloom to appear deeper. I was also unable to measure distances, or see objects approaching in the twilight. When I was about twelve years old, a film was for the first time observed in both eyes, that in the right eye being more distinct than the left. This had doubtless existed since childhood, and had become gradually more evident, and was at last accidentally observed. For two years after this, by the advice of an oculist, all study was given up, and I was turned out on a farm. At the end of that time I again resumed my studies. Each year I found that I required a more powerful light. The invention of moderator lamps proved a great boon to me, but the effect of even these powerful means gradually wore off in time, and as years passed on, I was reduced to guessing a good deal at words, especially in an imperfect light, for I found that I frequently mistook a strange word, unless I spelt it over with great care. But the progress of the cataracts had been so gradual that my sight had become highly educated, and after residing three years in Oxford, I took my degree without difficulty, though at times I suffered great inconvenience, both in the lecture room and at examinations, from want of light." Such was the account that I received from this young gentleman when he first consulted me, and which I have copied from his own written statement. On examination I found that

the right eye was useless to him; it could only perceive dim outlines of objects, and there was divergent strabismus of that eye to the extent of about three lines. On dilating the pupil fully with atropine, rather more than the nuclear half of the lens was found to be opaque, and of a dense greyish white colour, the margin being perfectly transparent. Through the transparent part the fundus of the eye could be readily seen with the ophthalmoscope, and appeared quite normal. When the pupil was thus dilated the vision was restored to a remarkable extent. Although the eye had been so long disused, and was so very imperfect during the contracted state of the pupil, yet as soon as it became fully dilated, he could read No. 4 of Jaeger, and he stated that his sight was brighter and clearer than he ever remembered even with the left eye, both for near and distant objects. With the left eye he could read slowly and with difficulty, and by the aid of a strong light No. 8 of Jaeger, at a distance of five inches. His perception of large objects also was misty and indistinct beyond a range of two yards. Under the influence of atropine, a nuclear cataract could be seen of the same size as that in the right eye, but of a pale grey colour, and much less opaque. The margin, like that of the right eye, was perfectly transparent. Vision was not improved in the left eye, but on the contrary rather impaired and confused by the action of atropine. This young gentleman was anxious to enter the Church, which he felt to be impossible under existing circumstances; he had also a strong impression that his sight was becoming worse from month to month. He was anxious to avoid, if possible, the necessity of wearing strong convex glasses. Under these circumstances I determined to perform iridesis. Early in April, under the influence of chloroform, I made an artificial pupil inwards in both eyes by iridesis. The effect of this operation was in some respects curious and interesting. Sight was so far improved in the right eye, that he could read No. 4 of Jaeger fluently in a good light; he could also see distant objects well. It was curious also that in reading he obtained binocular vision. The right eye, which in repose remained divergent to the extent of three lines, might be seen to travel inwards, so as to converge accurately with the left as soon as he directed the eyes upon a minute object, as in reading, but when looking at distant objects there was double vision. This seems to prove that the divergent strabismus was caused by the defective vision; that under the stimulus of the focussing effort, the internal rectus was able to reassert its preponderating power, and overcame even an extreme degree of strabismus, but that in looking at distant objects, and when the focussing effort was but feebly exerted, the external rectus still possessed too much influence, and produced double vision;

the only defect that remained in the right eye was a feeling as if more light were wanted in the eye, and considerable difficulty in seeing small objects when the light was rather subdued. The effect of the operation upon the left eye was less satisfactory, as might have been expected. There was some confusion and distortion of minute objects, the power of reading with it was not so good as before the operation, and even distant objects were indistinct. When, however, the two eyes were used together, the power of reading was good, far better than before the operation, and in looking through a telescope with the left eye, vision was quite distinct.

In July I again saw my patient, the sight of the left eye had improved, partly perhaps by practice, and partly because the nucleus of the lens had become denser. The sight of the right eye remained the same, There was still double vision for distant objects, and a strong desire for more light in the eye. As my patient was very accurate in all his observations, and intelligent in his suggestions, I determined to endeavour to remove as far as possible the inconveniences of which he now complained.

About the middle of July he was once more placed under the influence of chloroform. I then proceeded in the first place to divide the external rectus muscle of the right eye subconjunctively; I then performed a second iridesis in the same eye in such a way as to enlarge the pupil and alter its shape, giving to it a crescentic form, with the two cornua of the crescent cut off. The effect of this operation was very satisfactory; double vision and and all tendency to divergent strabismus were removed, more light was admitted into the eye, the patient could see better in a subdued light, and retained quite as accurate vision, both for near and distant objects, as before the second operation—in fact rather better. The right eye was now, in all respects, decidedly the best of the two.

I again saw my patient in October. The right eye had retained all the advantages gained by the last operation, and had even somewhat improved by use. The left eye remained about the same. There was some confusion, except when the light was very strong, and there seemed to be less light admitted into the left eye than into the right. Under these circumstances, encouraged by the success which had attended the enlargement of the pupil in the right eye, I proposed to my patient a similar proceeding in the left, partly with a view of admitting more light through the transparent margin of the lens, and partly to cover, if possible more of the semi-opaque nucleus. I performed this my fourth and last operation under chloroform, and succeeded in both these objects. A fortnight after this operation he was able to see rather better with the left eye than the right, and as the opaque nucleus gradually increased in density the

distinctness in the outline of objects was brought out more vividly, though of course with both eyes he sees better than with either one employed singly. He now can read No. 1 of Jaeger at 5 inches, and No. 16 at 20 inches. His sight for small print is slightly improved by a weak convex glass, and for distant objects by a weak concave, but he rarely employs either. He writes me word that he was ordained in December last, and that he is able to perform all his clerical duties with ease and comfort, though he still is somewhat at a loss when the light is feeble.

This case helps us in determining some important practical points. 1st. it shows that the nucleus of a congenital cataract is liable gradually to become more opaque, although the marginal portion may retain its transparency. 2ndly. That divergent strabismus results from defective vision, and from the non-exercise of the focussing power; that it will subside in a great measure on the restoration of sight, and that it may exist where the retina is quite healthy. 3rdly. It shows that the artificial pupil should be of a sufficient size, at least equal to the area of the natural pupil, though necessarily of a different shape. 4thly. It proves that a semi-transparent state of the nucleus causes some confusion of vision, by allowing rays to pass with a different degree of refraction, and that the more this can be covered, the better the result will be. 5thly. It suggests that there should be sufficient clear margin to ensure an artificial pupil, at least equal in its area to the average size of the natural pupil, and that where suitable cases are selected as good a result may be anticipated as where the cataract is removed. 6thly. It may be observed that four operations were performed without the slightest reaction. The eyes being on each occasion fit for use in a few days. This is the usual experience of this operation, it may therefore be regarded as a far safer proceeding than the removal of a congenital cataract in an adult.

I consider the performance of a second iridesis as a valuable modification of the original operation in certain cases, and a preferable proceeding to iridectomy in cases of congenital cataract; it enables us to limit and define the pupil more accurately, and to draw the iris more completely over the nuclear portion of the lens, so as chiefly to expose the transparent marginal part. The arguments against the performance of this operation, as contrasted with the removal of the lens, seem to be the possibility of the marginal part of the lens becoming at some time or other opaque; the altered and deformed shape of the pupil, and the limitation in the amount of light admitted into the eye; and the question whether vision is ever quite as good as after removal of the lens, in consequence of the imperfect refractory power of the margin of the

lens and cornea, as compared with the centre. The chief arguments in its favour are its greater safety and the avoidance of the necessity for using powerful lenses. Each individual case must be judged by its own special merits. The surgeon must weigh the respective advantages and disadvantages, he may even leave the choice in some measure and in some cases to the patients, and it is possible that the case I have related may assist him in forming his judgment.

As I have introduced some slight modifications, both as regards the steps of the operation of iridesis, and the instruments employed since I first described it in this Journal, I think it may be useful if I briefly detail my present method of proceeding in cases such as the one I am now describing. The patient having been placed under the influence of chloroform, the eye is exposed by means of a wire speculum, to which a stop is introduced, so as to regulate the degree to which the lids are separated, and thus to prevent a constant strain upon them. As the most advantageous position for the artificial pupil is inwards towards the nose, the eye must be held firmly outwards. I then introduce a broad needle curved at an angle, upon the flat, just at the point of junction of cornea with the sclerotic, slightly encroaching upon the latter. A small loop of fine black silk is then placed over the opening that has been made. A fine blunt hook, made of silver, so as to allow of being curved conveniently for entering at the nasal side of the eye, is then passed through the loop of silk and the opening into the anterior chamber to the margin of the pupil, which is thus drawn out through the opening by means of the hook. An assistant then seizes each end of the loop of silk with small broad pointed forceps, and tightens them carefully, so as to enclose the portion of iris that has been caught in the hook and pulled out; care should be taken to include the iris only in the tie, and not any of the conjunctiva, as it detaches more readily. Some little management is also necessary in bringing the hook out through the small wound, otherwise it is apt to entangle itself in the opening as it is drawn out. This is done by turning it on the flat as it emerges. In the course of two or three days, the little knot of silk, together with the portion of iris that has been included in the ligature, drops off. If this do not occur, it may be lifted off with a pair of forceps.

In performing a second iridesis, as I did in this case, at an interval of three months, a method of proceeding similar to the former must be adopted. The opening must be made through the junction of the cornea and sclerotic, about 2½ lines from the previous one, and the hook must be introduced round the edge of the previous artificial pupil, so as to draw it out in such a a way as to alter its shape. The effect of this is to enlarge the

pupil in one way, and expose more of the clear margin of the lens, and diminish it in another, so as to cover more of the opaque part of the lens. The chief points requiring care in the operation, are ; 1st. The size and position of the opening, in front of the ciliary attachment of the iris, but not through the transparent cornea, and just large enough to admit the hook. 2ndly. The hook must be carefully made, round and smooth at the end, so as to prevent the possibility of injuring the capsule of the lens, and after it has entangled the margin of the iris some management is required, as already stated, in causing it to emerge readily through the small wound by which it has entered ; this is done by some careful rotation. 3rdly. It is important to draw the hook, together with the iris that is held by it, completely out through the wound as far as is practicable, without detaching one from the other. In drawing the ends of the silk tight, care is required to keep them on a level, and in an exact line with the portion of iris that is to be ligatured, otherwise it may be torn away, and thus the object of the operation may be frustrated. A little care is also required in detaching the hook after the prolapsed portion of iris is strangulated ; it must be carefully unhooked, as it were, and forcibly dragged away.—*Ophthalmic Hospital Reports, Vol.* iv. 1864, *p.* 150.

77.—ON IRIDECTOMY AND SECTION OF THE CILIARY MUSCLE.

By the Editor of the Journal of British Ophthalmology.

We could name a dozen of our countrymen whose reputation in eye disease, well attested by important contributions to science in their special department, must be held to be second to no practitioners of Continental celebrity. Any one with competent powers of analysis, who carefully reads the numerous translations of foreign works upon the subject so constantly issuing from the press, will, by internal evidence, soon be convinced not only of this, but that Foreign practitioners are a generation, at least, behind us in practical knowledge and operative skill. A widely entertained idea to the contrary, however, has been successfully rubbed into public opinion, both at home and abroad ; nor need any surprise be expressed at the circumstance, which may be accounted for without going far below the surface of things. . . . . .

That our appreciation of the present position of ophthalmic surgery in England will be disputed, we have little fear. Before us are the medical journals of the past six months containing all that has been said upon the Iridectomy question of the day. To this lamentable exhibition of incautious and sometimes

incompetent zeal, backed up occasionally by the solemn utterances of gifted individuals committed to a selfish policy, we should apply for abundant confirmation if challenged to produce proofs of the servile degeneracy to which the school of English oculists has fallen, through influences such as we have referred to. . . . . .

It will be as well to make a few remarks here upon the inconvenience we have experienced throughout the discussion, from the extraordinary looseness of the term employed by British advocates, to designate that peculiar diseased condition of the eye, in which, with much positiveness and exactness, they allege, that to be of any use to the patient, iridectomy can only be properly performed. Of all the names that might have been selected, *glaucoma* certainly appears to us the most inappropriate and inopportune. Under the old system of nomenclature, before the invention of the ophthalmoscope, which now affords such abundant means of accurately defining the nature of many hitherto unperceived differences in eye disease, there was some excuse for the use of an expression, suggested by a prominent objective symptom, a *greenish* appearance, reflected from some part of the internal eye; and which afforded imperfect knowledge an opportunity, at times very convenient, of not committing itself to a more definite description. . . .

If the advocates of iridectomy, on the one hand, cut so sorry a figure as controversialists, we must say their opponents exhibit quite as poor an appearance on the other side. A great sin of omission convicts them of much ungenerous disregard for the merits of others, and can be as easily proved against them. To do this, we shall, in the first place, point out that after all, in the discussion, truth has sometimes managed to shew her head above the confusion and strife of words, where she was in much danger of being completely submerged. Her reputed residence in a well is no myth, or otherwise the iridectomy deluge of ignorant opinion and positive assertion would have been too much for her. At all events, some few facts have been proved to our satisfaction. To take them in order, it seems agreed by common consent of all parties, *Firstly*—That some operation, cutting into the internal eye, is of great advantage in a particular class of inflammations connected with the choroidal system; including in this, the coat itself, the iris, and the ciliary structures. *Secondly*—That it would be well to avoid, as much as possible, terms used in an exploded system of ophthalmology when describing symptoms, or defining disease, as they appear with our present greatly improved means of making examinations. *Thirdly*—That it is highly necessary to consider inflammation seated in any one part of the choroidal system, as if it affected by complication, the whole. *Fourthly*—That irido-

choroiditis should be classed, according to circumstances, into *acute* and *chronic*. *Fifthly*—That *tension* of the eyeball is the chief characteristic of the former, or acute form, when an operation is required, whilst the opposite condition of *softness* sometimes indicates the same need in the latter or chronic stage. *Sixthly*—That the two conditions naturally imply different operations; one obviously to reduce tension; the other for the very opposite purpose is less patent, and could not have suggested itself, but might be the result of a happy accident combined with ingenious observation. *Seventhly*—That such occurred in Graefe's practice, and led to iridectomy. And *finally*, (of course to our own satisfaction, and apart from any theory)—That Hancock's operation for the division of the ciliary muscle fully satisfies all the requirements of *acute irido-choroiditis*, and *posterior arthritic ophthalmia;* whilst, on the other hand, iridectomy is calculated to give the best chance for improvement wherever some degree of atrophy of the eyeball exists with or without synechia in *chronic irido-choroiditis*.

Now, it is regarding these very important points, and especially the ultimate conclusion to which they lead, that we charge the Anti-Iridectomists with not having candidly recognized the whole truth in their treatment of the subject in dispute. If they could, they would gladly have burked Hancock and his operation too. They have always carefully avoided any mention of his name, or reference to section of the ciliary structures, as a proper substitute for Graefe's more serious proposal. By a most disengenuous policy, they have also sought to steer a comfortable middle course; "damning with faint praise" a certain amount of excellence they admitted in their opponent's propositions; and limiting hostilities to a demand for principles and definitions, which they knew very well could not be given under the circumstances, without giving up the whole question at issue. In this cleft stick, accordingly, they held their German friends, satisfied without going further into opposition, for fear they might be compelled to magnify a contemporary fellow-countryman's fame, by shewing that, at least, in one half of the cases claimed for iridectomy, in *acute irido-choroiditis*, the early stages of *internal arthritic ophthalmia*, &c., Hancock's operation was all that was needed.

There is, in fact, nothing more unworthy in the conduct we have had to comment upon with regard to the leading ophthalmologists of the day, and their Continental proclivities, than the like professional jealousy of the Anti-Iridectomists, always remembering to forget whatever was calculated to reflect credit upon their own country. Through published letters innumerable, we look in vain for any approving reference to what seems to us, the very best measure as yet proposed for at once evacua-

ting the overcharged humours of the eye, unloading the gorged and tumid vessels of the ciliary zone around the cornea, and at the same time dividing the muscular fibres; abnormal spasm in which, seems to be constituted the constricting element in the mischief going on. There cannot reasonably, we think, be the least doubt that Mr. Hancock's operation will ultimately become the settled universal practice in *acute irido-choroiditis*, whenever an incision is necessary to relieve the tension and vascular excitement; and yet that these great friends of humanity, so frequently appealing to a sense of duty, shut their eyes, and quietly ignore, as if it never existed, the ample and perfectly reliable testimony as to the positive permanent benefit that has followed its use in many hundred cases.

It will have been perceived that throughout we have assumed recurring *acute irido-choroiditis* to be not only due to a constitutional dyscrasia, but moreover, that it is the same disease as Graefe's acute glaucoma, the *ophthalmia arthritica interna* of more experienced observers, without his bold, presuming genius. It is to this latter feature of his character he is in a great measure indebted for his notoriety, and, in our opinion, responsible besides, for the numbers of mutilated eyes that has since been sacrificed on his authority. Can anything less be said, we confidently ask, when we reflect that in his paper, "On Iridectomy in Glaucoma," (*p.* 362, *Vol.* V. *New Syden. Soc. Pub.*), he insists "in the acute period that the advice *to operate immediately and without hesitation* cannot be too urgent," and after further argument and several references to decisive cases, which he wishes us to accept as cases in point, he continues, on the next page, to say "only a glance at the fate of these different eyes is needed *to induce the abandonment of all other treatment in glaucoma than that of the immediate performance of iridectomy.*" The italics, it deserves notice, are not even ours, but apparently the author's own, to emphasize and add to the importance of the advice given, and yet, in the face of these positive injunctions, the effect of which upon his English imitators may be gathered from the fact, that the very same practice of early, immediate operation was insisted upon, over and over again, in the earlier letters published during the late discussion in the pages of the *British Medical Journal*; in the face of this we repeat, and after all the mischief of indiscriminate operation has been done, we find Graefe himself, five years subsequently, entering the field again, with another Paper to show that the "*urgency in acute cases varies.*" (*p.* 41, *Part* 1, Vol. IV. *Oph. Hospital Reports.*) And that the "urgency does not depend on the intensity of redness (!) or chemosis, nor on the amount of tension (!!) or pain (!!!) but, above all, on *the degree of impairment of sight.*" Let it be remarked, the necessity of iridectomy is stated here

not to depend upon redness, pain, or swelling, the ordinary indications of acute inflammation, but on a loss of vision, which, in fact, is the only measure we have of the progress of chronic glaucoma; the Professor thus endorsing the opinion expressed in the sixth conclusion of our summary. But what follows improves even upon this remarkable withdrawal from the positive position assumed by Graefe in his first papers—"As long as the patient is able to read large print, and the field of vision is not contracted, the operation may be deferred a few days, if need so require, especially if the inflammation tend to abate, and the sight to improve somewhat under the treatment employed." A few short years have produced a wonderful change of opinion, but we did not expect that he would so candidly have admitted the necessity of quite another sort of practice. In this, we trust his imitators will follow the good example. It does seem strange, after such distinct language as "*to operate immediately and without hesitation*," &c., to read now from the same hand the passage just quoted, arresting the operation, "*especially if the inflammation tends to abate, and the sight to improve somewhat under the treatment employed.*" Just so, now it is, be in no hurry to operate; first try the usual means to subdue the inflammatory stage, and if it succeeds, all very well, if not, then iridectomy may be tried. His English friends must certainly thank him for refuting them so completely, as far as regards the importance and value they attach to an early resort to iridectomy, and at the same time suggesting what they have always objected to, first to try ordinary antiphlogistic remedies. He wishes indeed, to impress this upon the minds of his disconcerted followers, for in this last paper referred to we find, further, "these facts need not prevent an intelligent practitioner from making use of iridectomy for cases of acute glaucoma, but only serve to recommend to him some degree of prognostic circumspection." This is merely a roundabout way of telling them to be cautious. At all events, they would have resented any such temporizing advice from anti-iridectomists, and stigmatized it as the result of imperfect observation or incapable weakness. We are glad, therefore, to find it on record from their instructor himself, and hope that in future, the eyes of humanity may be spared the too frequent application of the knife of the young or zealous iridectomist.

The object, however, of this paper has been, not one of analyzing the scientific accuracy or practical value of a few propositions in eye disease, which, owing their origin to German ingenuity of thought, have been unduly magnified into authoritative doctrine, by British Ophthalmologists, but, rather that of expressing an opinion as to the general unsound-

ness of Graefe's conclusions on iridectomy as a treatment for glaucoma; that is to say, wherever we could fix him to any data to guide us as to what he really meant; and which would stand as evidence between him and ourselves; at the same time we have not in any way sought to misrepresent his views. We have also made an effort to remove the stigma, which some of our contemporaries endeavoured to affix upon national character, by ostentatiously seeking from abroad that information they could much more readily and trustworthily have obtained in our ophthalmic institutions. Finally, we emphatically enter our protest against the outrageous estimate of the value of iridectomy, entertained by some of our leading ophthalmologists, who pretend to receive it as a great addition to modern surgery, and as a blessing and boon to suffering humanity; because had they been moved by these always excellent reasons, they would long before this have recognized in division of the ciliary structures, a safer and quite as effective an operation, the means of securing all the advantages iridectomy could offer, without the danger of mutilation which always must attend it. There are some eyes, however, that require no less a delicate instrument to open them them than a crow-bar; and if after what we have said in vindication of national honour and reputation, the British admirers of the German practice fail to perceive the superiority of the product of home sagacity and operative skill, we shall give up the task of further endeavouring to convince them, and class them as belonging to the cases of the most hopelessly blind—those who will not see.—*Journal of British Ophthalmology, Oct.* 1864, *p.* 2.

78.—ON THE OPERATION OF IRIDECTOMY.

By T. Wharton Jones, Esq., F.R.S., Professor of Ophthalmic Medicine and Surgery in University College, and Ophthalmic Surgeon to the Hospital.

Iridectomy is the cutting out of a piece of the iris, and is an operation which has been long in use for the formation of artificial pupil. There are two forms of the operation—the one named *central excision* of the iris, the other *lateral excision.*

The formation of artificial pupil by central excision, you see had recourse to here in certain cases of closed pupil. The formation of artificial pupil by lateral excision, which we have occasion more frequently to perform, is applicable to those cases especially in which the pupil is free either wholly or in part, but in which the centre of the cornea opposite is so opaque as to prevent the entrance of the light into it. By excision of the iris on one side, opposite a clear part of the

cornea, the rays of light entering the eye by that clear part are afforded a free passage on their way to the retina.

The opacity of the centre of the cornea in those cases in which the pupil is still open wholly or partially, is an effect of various forms of ophthalmia. Though after the subsidence of the inflammation, the cornea tends to become clear again, opacity often lingers in the central part. I should observe that the clearing goes on from the circumference to the centre. If there has been no penetrating ulcer of the cornea with *prolapsus iridis*, the pupil remains wholly open and free behind the opacity. When, however, there has been ulceration eating through the whole thickness of the cornea, a portion of the iris will be found adherent to the cornea, in consequence of its having become prolapsed through the perforation caused by the ulceration. In the situation of the cicatrice left by the healing of the ulcer, and to a considerable extent all round, the cornea remains permanently opaque. In such a case the pupil is contracted and dragged behind the opaque part of the cornea and its margin is free on one side only.

The operation for artificial pupil by lateral excision we sometimes perform in cases in which the transparency of the cornea is unimpaired, but in which there is obstruction of the pupil by opaque deposit of lymph and extensive adhesions of the pupillary margin of the iris to the capsule of the lens, the lens being in other respects still transparent.

Having thus indicated the kind of cases in which it has been long customary to perform the operation for artificial pupil by lateral excision of a piece of the iris, let us now address ourselves to the mode of performing the operation.

The best position for the patient is to lie on his back on a table with his head sufficiently raised; in this position the patient's head is secured against any sudden backward movement which might be fatal to the eye at the moment the iris is being drawn out in order to be excised. If the patient is young, or not sufficiently firm, you will find it necessary to give chloroform.

Matters being thus so far arranged, the surgeon, having all his instruments ready at hand, takes charge of one eyelid and his assistant of the other; then, at the side where the state of the eye permits of the artificial pupil being formed—a point of course, previously determined on—he makes an incision through the cornea, close to and concentric with its margin into the anterior chamber to the extent of about a quarter of its circumference. This section of the cornea is, perhaps, best effected by puncturation and counter-puncturation with a cataract knife, as in making the section of the cornea for extraction of the cataract. This was what I did in the case of glaucomatous ophthal-

mia in which I performed iridectomy last Friday; that is three days ago. In operating on that occasion, however, I made the section on the sclerotic side of the margin of the clear cornea, the reason for which proceeding I shall afterwards explain. In operating exclusively for the sake of an artificial pupil I would not, unless there were a very small extent of clear cornea, make the section beyond the extreme margin of the cornea, as I did in this instance, for my object would not be to cut away the whole breadth of the iris at the place.

The section of the cornea having been made, the necessary result was, as you saw, escape of the aqueous humour. Another result, which generally takes place, you saw was prolapse of the iris, that membrane being forced out through the opening in the cornea by the gush of aqueous humour which took place at the moment of completing the section.

In cases in which there is adhesion of the iris to the cornea (*synechia anterior*, as such a state is called), or of the iris to the capsule of the lens (*synechia posterior*, as this state is called), *prolapsus iridis* may not occur.

If the iris protrudes, the second step of the operation is performed by simply seizing the protruding iris with a fine forceps, such as this which I used on the occasion referred to, and dragging it further out so that its pupillary margin may be included in the piece excised.

If, on the contrary, in consequence of adhesion to the cornea or capsule of the lens, the iris does not of itself protrude through the opening, it is necessary to enter the point of the forceps closed, a little way into the anterior chamber, and then opening the forceps, the Surgeon seizes the iris by pinching it up, and drags it gently out to the necessary extent. In performing this manœuvre, we must take care not to push the point of the forceps beyond the pupillary margin of the iris, for fear of wounding the capsule of the lens—a wound of which membrane, as you are aware, would induce opacity of the lens.

The excision of the protruded piece of iris is effected by means of this well-known form of scissors, curved on the flat. In performing this act, the scissors are to be held, of course, with the convexity of the curve next the cornea, and with their length at right angles to the line of the section of the cornea, in order not to run the slightest risk of including a bit of the flap of the cornea in the excision. In the operation last Friday, I was careful to snip the protruded iris first at one end of the wound in the cornea and then at the other, before completing the excision of the whole. This I did, as it was my object in that case to excise a large piece of the iris. It was for this reason, also, that I made the section on the sclerotic side of the clear margin of the cornea. Had I been operating

merely for the formation of an artificial pupil it would have been sufficient to snip off as much of the iris as could be comprehended in one cut of the scissors.

When the eye and iris are otherwise healthy, as is usually the case when you perform iridectomy merely for the sake of obtaining an artificial pupil, there is little or no bleeding from the cut iris. Matters are different when the operation of iridectomy is performed under the circumstances under which I performed it in the case I have been referring to. The iris, being in common with other parts of the eyeball, the seat of great venous congestion, blood escaped in that case, as you saw, in very considerable quantity—so great as to fill the aqueous chambers.

The operation being completed, what is the state of the eye? By the evacuation of the aqueous humour, the vitreous body and lens are, by the elastic reaction of the coats of the eyeball pressed forward against the remaining portion of the iris, and this, again, against the cornea.

The edges of the corneal incision very quickly adhere, so that when you examine the eye the second day after the operation, you, perhaps, find union has taken place; and, as a consequence of the closure of the opening in the cornea, you find the aqueous humour reaccumulated and the cornea again plump.

Whence is this regeneration of the aqueous humour derived? I think there can be no doubt that it is derived by exudation, chiefly from the blood circulating in the vessels of the very vascular ciliary processes which project free into the posterior chamber all round its circumference.

A very common answer to this question used to be that the aqueous humour is secreted by the lining membrane of the aqueous chambers; but this, I must say, is a statement not exactly in accordance with our notions of the process of secretion unless it be understood to refer merely to the detached cells seen suspended in the aqueous humour examined under the microscope, and which are, no doubt, thrown off from the surface of the walls of the aqueous chambers. Another opinion which has been enunciated of late years is, that the aqueous humour is derived principally from the surface of the iris by exudation or secretion. In disproof of this opinion, it may be enough to refer to the fact that in a case of irideremia or congenital total absence of iris, in which I had occasion to perform the operation of paracentesis corneæ for an internal inflammation, regeneration of the aqueous humour took place as rapidly and completely as is usual in cases in which the iris is normally existent; and to another fact—viz., that the whole iris has been torn away by accident, with, at the same time, loss of the aqueous humour, but in which case the aqueous humour, notwithstanding, has been duly regenerated.

If there was any blood effused into the aqueous chambers at the time of the operation, it disappears by absorption—usually in a very short time. The patient commonly recovers from the operation in a few days.

So much for iridectomy or lateral excision of the iris for the sake of forming an artificial pupil. I should now direct attention speciallyto the operation as performed in the case of glaucomatous inflammation of the eye at present under our care.

Before speaking of glaucoma, and iridectomy as a means of treating it, however, I would make some remarks on the evacuation of the aqueous humour as a means of treating certain anterior internal ophthalmiæ.

It is about fifty years ago since the value of this operation was brought under the notice of the Profession by Mr. Wardrop, in cases especially of anterior internal inflammation of the eye attended by dimness of the cornea. Considering that the dimness of the cornea was the result of intraocular pressure, Mr. Wardrop punctured the cornea and evacuated the aqueous humour in order to relieve this pressure. Mr. Wardrop was led to adopt the practice by reflecting on the fact, that if you take the eye of a sheep, for instance, and squeeze it in your hand, the cornea becomes dim, but resumes its transparency when the pressure is relaxed.

Whether the dimness in this experiment be of the same nature as the dimness of the cornea in the inflammations of the eye under notice is a question of no practical consequence. It is enough for us to know that evacuation of the aqueous humour is a most valuable remedy in the treatment of corneitis and such anterior internal inflammations as involve the iris and cornea.

Such inflammations give rise to more copious exudation of aqueous humour, and the irritation resulting from the intraocular pressure occasioned by the increased accumulation keeps up the disease and opposes the beneficial operation of the medicines employed. Relieve this source of irritation by evacuating the aqueous humour, and the inflammation will begin to yield to the action of the medicines it previously resisted.

Often a single performance of the operation is sufficient; sometimes the operation may require to be repeated two or three times. We have seen that the aqueous humour is quickly regenerated, and that the source whence it is derived is principally the blood circulating in the vessels of the very vascular ciliary processes.

I have over and over again proved the value of this operation as an auxiliary of the medicinal treatment, in cases in which the inflammation was very stubborn, and by means of it have often rescued the eye from imminent destruction.—*Medical Times and Gazette, July* 23, 1864, *p.* 83.

79.—ON THE PATHOLOGY OF GLAUCOMA.

By T. Wharton Jones, Esq., F.R.S., Ophthalmic Surgeon to University College Hospital.

The name glaucoma is applied to a morbid condition of the eye, in which there is great deterioration of sight—even total blindness—and in which, through the much dilated and, perhaps, ovally or otherwise distorted pupil, there is seen an appearance as if of a sea-green opacity; hence the name glaucoma, from γλαυκος, sea-green.

This sea-green opaque appearance behind the pupil was at one time supposed to have its seat in the vitreous humour. Glaucoma, therefore, as opacity of the vitreous body, used to be contrasted with cataract as opacity of the crystalline lens

It was, however, demonstrated by Dr. Mackenzie many years ago, partly by dissections after death, and partly by catoptrical exploration of the eye during life, that the cause of the sea-green opaque appearance in glaucoma really has its seat in the lens, and that it is owing to an alteration in the condition of that body, whereby, though still in a great measure retaining its transparency, it reflects much of the light entering it, and that of a sea-green tint.

Though giving the name to the disease, the sea-green opaque appearance behind the pupil, it is to be remembered, is merely an incidental accompaniment of it. A very much more serious state of matters characterises its real pathology. Indeed, the appearance of a greyish or greenish opacity behind the pupil is not at all an uncommon appearance in the eyes of old persons whose sight, considering their age, is not particularly impaired.

Great venous congestion may be said to be the characteristic morbid condition of the eye in glaucoma; and the parts the congestion of which is more immediately fatal to the sight are the choroid and retina.

If we examine the interior of a glaucomatous eye by means of the ophthalmoscope, we not unfrequently find that the humours are sufficiently clear to allow of the state of the papilla optica, retina, and choroid being ascertained.

In consequence of the excavation of the papilla optica, the course of the retinal vessels, on entering the eye, appears peculiar. Having penetrated the lamina cribrosa, they run on the bottom of the excavation, by the overhanging margin of which their further course is concealed; and when they reappear on the retina they do not look like continuations of the same vessels.

The arteries of the retina, being constricted, appear slender and pale, whilst the veins are dark and enormously distended.

As to the alterations observed in the condition of the choroid:—The quantity of the pigment in the cells of the pigment membrane is diminished, whilst there may be an increase in the quantity of the pigment in the cells of the stroma of the choroid. In this case, the vessels of the choroid are seen in ophthalmoscopical examinations more distinctly, and with darker spaces between them.

The turgid tortuous ramifications of the veins extending from the place of insertion of the recti muscles on the white of the eye, manifests a state of external venous congestion likewise. Indeed, the glaucomatous condition of the eye very generally co-exists with abdominal congestion and hemorrhoidal disease—so much so, that the turgid and tortuous veins, so common in the white of the eye in such cases, have been named "abdominal vessels."

In the glaucomatous eye, even at a very early stage of the disease, the iris is inclined towards the cornea, and the aqueous chambers are diminished in depth. This is owing to the increased accumulation of blood in the veins of the choroid and retina, and to an increase of the fluid in the cells of the vitreous body—itself the result of the congestion—whereby the posterior segment of the eyeball is distended, and the lens pressed forward against the iris.

It is in a great measure owing to this posterior intra-ocular distension that the papilla optica becomes excavated and that the retina suffers.

It is in consequence of this posterior intra-ocular distension also that the eyeball is felt so hard to the touch. Owing also to the intra-ocular distension, pain in the eye, around the orbit and all over the side of the head, is a very common attendant of glaucoma. It is especially severe when inflammation of the eye supervenes, which it is very prone to do. In this case also the sight is rapidly destroyed.

The inflammation is of that character which has been named arthritic posterior internal ophthalmia. The affection is also named acute glaucoma.

I have said that the lens, though it looks opaque in glaucoma, may be still clear enough to permit the bottom of the eye being ophthalmoscopically examined. The lens, however, is liable eventually to become cataractous. In such cases, there is usually already disorganisation of the retina, so that the cataract is merely superadded to hopeless amaurosis.

Great venous congestion appears to be the fundamental morbid condition of the eye in glaucoma, the retina and choroid being especially affected. We saw represented in Liebreich's ophthalmoscopical figures the arteries of the retina constricted and pale, whilst the veins are very turgid and dark. That there

is a similar condition of vessels in the white of the eye, is evident; for while the rectal veins are turgid and tortuous, corresponding arteries are scarcely to be seen.

On subjecting the retina of a glaucomatous eye to microscopical examination, I have found the radicles of the veins with varicose dilatations, or pouches.

The capillaries have been said to be varicose, but I did not find them so, and I do not remember, in the course of all my researches into the state of the bloodvessels in inflammation, to have found anything you could call a varicose condition of the capillaries. Constricted arteries appear with their walls much thickened from contraction of their circular muscular fibres. This thickening of the walls of the arteries must not, however, be called hypertrophy. In the web of the bat's wing or frog's foot under the microscope, you see the thickening of the walls of the artery take place when the calibre of the vessel becomes constricted by contraction of the circular muscular fibres; and, on the other hand, you see it superseded by thinning, when the calibre of the artery becomes widened by relaxation of the circular muscular fibres.

The varicose state of the venous radicle, I saw take place in the mesentery of the living mouse, under the microscope, by the walls of the vessel here and there becoming much constricted and here and there much dilated. This was towards the end of the observation. The corresponding arteries were constricted, except where their last ramifications opened into the capillaries. Here the flow of blood in them was retrograde and sluggish. In the varicose venous radicles there was congestion of red corpuscles.

The observation to which I refer illustrates the relation between constriction of the arteries and congestion of the veins. An artery becoming constricted, the blood is propelled through it with diminished *vis a tergo*. In consequence of this, the corpuscles are seen gradually to accumulate in the capillaries and venous radicles to which the artery leads, and thus congestion of blood-corpuscles is established. In a case of this kind I have seen a small incision at the place by emptying the distended vessels, relieve the congestion of the surrounding parts. To this observation, which I first made on the tail of the tadpole, under the microscope, many years ago, I shall have occasion to refer in my next Lecture.

Seeing that constriction of the small arteries of a part causes congestion of the capillaries and venous radicles to which they lead, and seeing that the fundamental morbid condition of the eye in glaucoma is great venous congestion, with constriction of the small arteries, we can understand how it is that bella-

donna or atropia applied to the eye in glaucoma aggravates the symptoms.

The action of belladonna on the small arteries of a part to which it is applied is, as I have over and over again explained, to excite the circular muscular fibres composing their middle coat to contraction, and, consequently, to produce constriction of their calibre. It is on the same principle, as I have also explained, I may here remark, that belladonna causes dilatation of the pupil. It excites the radiating muscular fibres of the iris to contraction, they being like the circular muscular fibres of the arteries acted on through the sympathetic nerves. The circular muscular fibres of the iris are under the control of the nerve of the third pair, and are not excited to contract by belladonna. They are, however, excited to contract by the Calabar bean, as you know. It has been fancied that belladonna acts by paralysing the circular muscular fibres of the iris, and so allowing the uncontrolled action of the radiating to come into play, but there is no good foundation for such an opinion.

To return to the injurious action of belladonna in glaucoma. Belladonna, by increasing the constriction of the arteries of the eye, determines an increase of the congestion in the veins.

When the glaucomatous state of the eye is not much developed, the eye slowly recovers from the injurious operation of the belladonna. This may not, however, prove to be the case in an advanced stage of the disease. In a stage in which the sight is already much deteriorated, a single application of belladonna to the eye is likely to deteriorate it still more, and that irrecoverably, to the great horror and distress of the patient and his friends and to the discredit of the doctor. Be cautious, therefore of applying belladonna or atropia to the eye in glaucoma. A late venerable and esteemed friend of mind used to tell me, in disparagement of the application of belladonna to the eye, of the case of a distinguished author whose sight—it must have been but a glimmer of sight—was destroyed by a single application of belladonna for a supposed cataract. The case, I have no doubt, was one of glaucoma in an advanced stage, and the application of the belladonna acted merely like the last feather on the overladen camel's back.

To resume our theme from which these observations on the action of belladonna in glaucoma have been a digression. The venous congestion of the choroid and retina in glaucoma, as we have seen, causes some degree of intraocular distension. And as an effect of the continuance of this congestion there supervenes an increase of the fluid of the cells of the vitreous body, which occasions a corresponding increase of the intraocular distension.

Whilst in anterior internal inflammations of the eyeball in which evacuation of the aqueous humour is often so beneficial, the intraocular distension has its seat especially in the anterior segment, as may be seen by the prominence of the cornea and depth of the aqueous chambers; here the intraocular distension has its seat chiefly in the posterior segment.

One effect of the distension in the posterior segment of the eyeball is seen to be that the lens and iris are pressed forward, and the aqueous chambers thus diminished in depth. Another effect of the intraocular distension implicating the posterior segment appears to be the excavation of the *papilla optica* as seen with the ophthalmoscope—an effect the possibility of which may be conceived if we call to mind that the optical nerve enclosed in its neurilemma lies within its fibrous duro-matral sheath (which is continuous with the sclerotica) to a certain extent free, like a viscus in a serous cavity; for such a connexion could allow of the nerve being slid slightly back into the sheath by the long-continued intraocular pressure bearing on the lamina cribosa. Some degree of atrophy of the optic nerve appears also to have a share in the production of the excavation at its entrance. Perhaps, also, on the other hand, an elevation of the retina, in the manner of chemosis, by the congested and thickened choroid.

In the earlier stages of glaucoma the sight varies, being sometimes better and sometimes worse. The improvement of sight occurs in fine weather, after rest of the eyes and when the digestion is good and bowels free. These and other similarly favourable condition, we can understand, promote diminution of the intraocular congestion, and thus determine a corresponding relief of the pressure on the retina. The deterioration of sight, on the contrary, occurs under the influence of opposite conditions, and especially mental depression, whereby the intraocular congestion is increased, and the pressure on the retina correspondingly aggravated.

In a more advanced stage, when the retina has suffered in its integrity, any occasional diminution of the intraocular congestion affords but small amelioration.

Photopsy, or the appearance of luminous spectra before the eyes, is a common symptom in glaucoma. It arises from pressure on the retina by the congested choroid. Such spectra may continue to present themselves even after the sight is lost. From seeing them the patient is apt to flatter himself with the delusive hope that sight is still in the eye, and may yet be restored.

The hardness of the eyeball in glaucoma has appeared to me to be owing sometimes not alone to intraocular distension, but also to extraocular pressure arising from a condensation and

shrinking, with loss of elasticity, of the tissue of the sclerotica. This view, I find from the French translation of my work on "Ophthalmic Medicine and Surgery," has also suggested itself to M. Cusco, who designates this extraocular pressure *concentric*, whilst to the intraocular distension he gives the name of *excentric*.

I have said that arthritic posterior internal ophthalmia is identical with what is named acute glaucoma.

In its typical form glaucoma is a chronic affection, and presents itself in various degrees of development; from the case in which the patient's attention is drawn to his eyes only by experiencing an occasional dimness of sight, by seeing luminous spectra, on stooping perhaps, more readily than usual, and by a feeling of fulness in the globe;—from the case in which, if the patient be led by the subjective symptoms I have enumerated, to take advice on his case, the medical man, on examination, will find the eyeball unnaturally hard to the touch; the sclerotica dark-looking; the veins on the white of the eye I have before spoken of, turgid and tortuous, the iris inclined towards the cornea and behind the rather dilated and sluggish or immovable pupil, the characteristic greenish appearance as if of opacity. From such a case to the case in which the sight is very much impaired or altogether lost,—in which luminous spectra may, notwithstanding, still be seen—in which there is pain in the eyeball and around the orbit—in which, behind the much and irregularly dilated pupil the medical man sees, on examination, the glaucomatous opaque appearance strongly marked, if there be not actual glaucomatous cataract—in which the tissue of the sclerotica, besides being dark and dirty looking, presents here and there a condensed and whitish aspect—in which the turgid veins are unusually large and tortuous—in which the iris itself is prevaded with tortuous veins, though properly speaking not inflamed—in which the eyeball is of stony hardness —in which the cornea is dim and rough, perhaps, with its epithelium occasionally rising up in the form of large phlyctenulæ —in which, lastly, sclerotic staphyloma presents itself, perhaps, in some part of the front of the eyeball.

In the course of the disease, intraocular hemorrhage may occur. The extravasated blood may be in the substance or on the surface of the retina, and may extend into the vitreous body. In this ophthalmoscopic figure of Liebreich, which I show you, you see blood filling the excavation of the papilla optica and extending into the vitreous body. Sometimes blood shows itself in the aqueous chambers, or in the interstices of the cornea.

The various organic alterations in the eye, with the corresponding subjective symptoms, in chronic glaucoma, which I

have now recapitulated, take place more or less gradually; and it may be, perhaps, only after many months that the extreme stage of development is attained. The acute form of glaucoma, on the contrary, is of sudden invasion and rapid development, though, be it remembered, that the affected eye may not have been for some time previously altogether sound, nor the patient's general condition satisfactory.

At the commencement of an attack of arthritic posterior internal ophthalmia or acute glaucoma there is often vomiting and diarrhœa; the vascular injection of the eye, both sclerotic and conjunctival, is great and of a purplish tint; there is excruciating pain all over the side of the head; the sight rapidly fails, and may perhaps be lost in a single night; the cornea is dim and rough, and the other characters of glaucoma present themselves in an aggravated degree.—*Medical Times and Gazette, July* 23, 30, 1864, *pp.* 83, 111.

80.—ON THE TREATMENT OF GLAUCOMA BY IRIDECTOMY.

By T. Wharton Jones, Esq., F.R.S., Ophthalmic Surgeon to University College Hospital.

[In this article (Mr. Jones' third lecture) it is not the writer's intention to enter into the general treatment of glaucoma; but simply to speak of the operation of iridectomy as a means of treating the disease *àpropos* of the case which forms the text of the paper. Glaucoma being a disease of advanced life, occurring especially in persons of broken health, it can be readily understood why it is an affection which should prove so rebellious to treatment.]

Here was a case, then, in which the right eye was, some three months ago, operated on by iridectomy for chronic glaucoma without any improvement of the sight, though the man expressed his belief that his left eye had gained in strength since the operation on the right.

This gain for the left eye, however, did not prove of long continuance; for the man presented himself the other week—that is about three months after the operation on the right eye—with an attack of arthritic posterior internal ophthalmia, or acute glaucoma of moderate severity of the left eye. On this eye, as you saw, I performed iridectomy a fortnight ago. On the night of the operation, and for two nights following, the patient took a pill containing two grains of calomel, one grain of extract of colchicum, and one grain of opium.

As a result of the operation and this treatment, the inflammation and pain began to abate and the sight appreciably to improve. In proportion as the blood, which was effused in con-

siderable quantity into the aqueous chambers at the time of the operation, became absorbed, this improvement of sight advanced so far that on Tuesday last, about ten days after the operation, the man said he could see all round about him much better than he was able to do before the operation. Unfortunately, however, there supervened without any evident cause, since Tuesday, a new effusion of blood into the aqueous chambers, whereby the improvement of sight such as had been gained was to some extent lost.

On Wednesday, at my visit, I ordered the application of leeches to the temple, the effect of which has been absorption of the effused blood to a great extent, so that the sight has now regained the improvement it had lost.

This spontaneous effusion of blood, I may here remark, exemplifies the tendency to intra-ocular hemorrhage in glaucoma I spoke of in a former lecture.

How did excision of a piece of iris act in producing the result I have described?

Iridectomy is commonly said to operate beneficially by removing the intra-ocular distension, and thus relieving the retina and ciliary nerves from pressure. No doubt it appears to produce some such effect; but how does it operate in removing the intraocular distension? this is the question.

On the assumption that the surface of the iris is the principal source whence the aqueous humour is exuded, iridectomy has been said to remove intra-ocular distension by diminishing the extent of the exuding surface, and thus setting a limit to the accumulation of aqueous humour. We have, however, seen that whatever good iridectomy may do in the way of diminishing intra-ocular distension, it cannot be by removing a source of the aqueous humour, because we have shown that the iris has little if any share in secreting aqueous humour; and it is evident that if it had, the removal of so small a portion of that membrane would not be likely to produce any great impression on the quantity of aqueous humour exuded. We have, moreover, seen that in glaucoma the intra-ocular distension is not owing to an increase in the quantity of aqueous humour, but that, on the contrary, it has its seat in the posterior segment of the eyeball.

An opinion has been expressed to the effect that iridectomy, by establishing a larger and freer communication between the two chambers of the aqueous humour promotes the diminution of intra-ocular distension. The force of this opinion, however, I cannot see, even supposing what has been just denied, that the distension has its seat in the aqueous chambers.

In reviewing our case in order to discover what can be ascertained from it in explanation of the *modus operandi* of iridectomy, we must not overlook the effect of the preliminary section of the

cornea and the evacuation of the aqueous humour that takes place in relieving the tension of the eyeball at the time. We all know what relief to tension is elsewhere afforded by an incision through a fascia investing a congested or inflamed part; and although undue accumulation of aqueous humour is not, as we have seen, a cause of the distension of the eyeball in glaucoma, still the evacuation of the aqueous humour must contribute for so much to the relief of the distension.

Let us now direct attention first to the operation on the right eye. Though this eye quickly recovered from the effects of the operation, though the quantity of blood effused into the aqueous chambers was not very great, and though what there was became speedily absorbed, no restoration of sight took place. The left eye, however, as we have seen, felt stronger, and the man could exercise the sight of it better.

According to the view of the pathology of glaucoma which I have submitted to you, this result of the iridectomy on the right eye might be explained as follows:—

The intra-ocular venous congestion was relieved by the operation—in what manner I shall endeavour to explain by-and-bye; and the circulation of the blood within the eyeball being thus rendered freer, absorption of superabundant fluid in the cells of the vitreous body was favoured so that altogether the intra-ocular distension was diminished. But you will ask, if so, why was sight not restored? The answer to this, I suppose, must be that the retina had already sustained so much material organic injury from the combined congestion and pressure, that on the diminution or removal of the distension it was no longer fit to resume its function, though the pain was relieved.

The relief of the right eye, however, from congestion and distension reacted by sympathy—or whatever other name you choose to employ to designate that influence which the condition of one eye undoubtedly exerts on the other—in a favourable manner on the left eye; so that what intra-ocular congestion and distension existed there, were for the time ameliorated. But as the patient is a person far advanced in life, and presents indications of a gouty constitution and broken health, we have no reason to be surprised that the amelioration in the condition of the left eye should have been for a time only; and that under the unfavourable circumstances of the late severe weather and its accompanying changes, the left eye should have become inflamed, and that the inflammation should have been what is called arthritic posterior internal ophthalmia or acute glaucoma.

From the iridectomy on this eye we have gained more for its sight than we did from the operation on the right eye for its sight.

We have seen that it is in acute glaucoma that most benefit

to sight is derived from iridectomy. This effect, such as it is, must, in my opinion, be looked for in the circumstance that the disease not having been of long standing, the retina may not as yet have suffered material organic change, and, therefore, is still capable of resuming to some extent its function on being relieved from pressure by the subsidence of the inflammatory congestion, and the consequent absorption of superabundant fluid in the posterior segment of the eyeball.

Let us now endeavour to explain how subsidence of the inflammatory congestion of the choroid and retina might be promoted by iridectomy.

At my last lecture, I referred to a microscopical observation which I had made on the tail of the tadpole when in a state of congestion—viz., that I had seen a small incision at the extremity, by emptying some of the congested vessels, relieve the congestion of the vessels higher up, so that the circulation, which was previously stagnant there, became re-established in its activity. Now, the excision of the piece of the iris, and the consequent evacuation of a small quantity of blood, appear to act by relieving in a similar manner the congestion of the choroid and retina, and thereby promoting in them a freer circulation. In fact, it is in a similar manner also, that scarification of the palpebral conjunctiva operates so beneficially when that membrane is in a state of great inflammatory congestion. It is not the mere loss of blood that does good, for that is insignificant, but the emptying of some of the vessels permitting of the re-establishment of the circulation in its activity in the part generally.

In our case, although the inflammation has been relieved and the sight somewhat improved, there is not any prospect of a restoration of what may be called *good sight;* and this judgment is, I believe, applicable to most other cases of iridectomy in acute glaucoma. In chronic glaucoma we have seen that the judgment is much less favourable. You have only to look through this table of cases in the Ophthalmic Hospital Reports (No. 10, January, 1860) to be satisfied of the inefficiency of the operation in chronic glaucoma.

You thus perceive how unfounded the claim is which has been set up for iridectomy as a *cure for glaucoma!*

The removal of the opaque lens by operation is entitled to be called a cure for cataract. So also, in the cases I have before spoken of, in which iridectomy is performed for the sake of an artificial pupil, the operation is entitled to be called so for a cure for the closed or obstracted pupil.

All this is intelligible, but as regards iridectomy in glaucoma the case is different.

Evacuation of the aqueous humour in certain cases of anterior

internal ophthalmia cannot be called a *cure*, though it is often a very useful auxiliary. In like manner, *iridectomy is not a cure for glaucoma*, though it may sometimes prove a useful auxiliary in the treatment of arthritic posterior internal ophthalmia, or as it has been called acute glaucoma. Here it may be said, perhaps, *remedium anceps melius quam nullam.*

We have seen that there are certain symptoms premonitory of glaucomatous failure of sight. In such a case iridectomy has been especially recommended as a prophylactic of the threatened mischief.

If under such circumstances you should think it warrantable to propose the operation, you ought to do so only with great reserve, as you could not truly give your patient an assurance that the operation would have the desired effect of preserving his sight. The patient, until he actually finds himself rapidly becoming blind, moreover, would be slow to listen to your proposal, especially if you faithfully explained to him, as it would be your duty to do, the *cons* as well as the *pros* of the operation. For though iridectomy, as we have seen, is an operation which inflicts comparatively so little violence that the eye, in general, very quickly recovers from it, still it has not unfrequently happened that the patient has been rendered not only not better—has been left not even in *statu quo*, which is always some consolation—but has been made positively worse.

That iridectomy and extraction of the lens combined may not permanently secure the eye against an attack of acute glaucoma was shown by a case of cataract we had here some years ago. The patient was a woman about sixty years of age, and the eyes were at the time otherwise quite healthy. I performed extraction on one eye, and in making the section of the cornea the iris, in consequence of a premature escape of the aqueous humour, fell before the edge of the knife, and a very considerable piece of it was cut out. The lens was easily extracted, and the case did well. The eye, indeed, recovered so rapidly that the patient was able to leave the Hospital within ten or twelve days after the operation. Having been fitted with cataract glasses, the woman emjoyed capital sight, and continued to do so for some two or three years. At the end of that time she one day presented herself at the Eye Infirmary, complaining that the sight of the eye was totally gone. She stated that the eye had been inflamed for some ten days past, and that she had been suffering severe pain in the head all that time.

On examination, I found the eye—the eye on which both iridectomy and extraction had been performed—hopelessly glaucomatous.

Suppose this patient had been seen earlier in the attack, would a second iridectomy have saved the eye? It is not likely,

but if so, it is evident that the eye could not bear much further repetition of it, for the good reason that there would be at lsta little of the iris remaining to cut away.

This suggests the question—Are persons with congenital absence of the iris liable to glaucoma? Such persons are rare, and I have never seen one affected with glaucoma exactly, though I have seen one attacked with internal inflammation of the eye of somewhat arthritic character after an operation for cataract. This was the case in which, after paracentesis corneæ, the aqueous humour was as quickly and completely regenerated as usual. I do not, however, suppose that congenital absence of the iris offers any immunity against glaucoma. If so, what could an iridectomist do in case of an attack?

Iridectomy, we have seen, may be advantageously performed in certain cases of chronic anterior internal ophthalmia with extensive adhesion of the pupillary margin of the iris to the capsule of the lens. Here we can understand that one effect of the operation is really to establish a freer communication bebeween the anterior and posterior chambers of the aqueous humour.

The operation has also been had recourse to in the hope of warding off the relapse of gonorrhœal rheumatic iritis, to which some persons are so painfully subject.

Iridectomy, however, may not secure the eyes against even a first attack of gonorrheal rheumatic iritis, as was shown in the following case:—

Some years ago we had a man in this hospital with gonorrhœal ophthalmia affecting both eyes. When first I saw him there was considerable chemosis, and both corneæ had become opaque. Fortunately, they were saved from destruction; but after the subsidence of the inflammation, though clearing of the corneæ took place to a very great extent at the circumference, opacity still lingered in the centre, so as to obstruct the sight completely. I therefore performed the operation for artificial pupil by iridectomy on both eyes. The iris of both eyes was at this time quite sound, in proof of which I may mention, in passing, that the pieces cut out were the subject of a very successful microscopical investigation of the muscular structure of the iris, by Mr. Joseph Lister, now Professor of Surgery in Glasgow, who assisted at the operations.

The man gained pretty useful sight, and went on well for some two or three years, when he had an attack of general gonorrhœal rheumatism, in the course of which the eyes became affected with very severe and stubborn iritis. The condition of one eye in particular remained after this very much deteriorated.

If iridectomy does not secure against a first attack of iritis, it

is not likely to secure against a relapse. It has, however, the effect of saving the eye from closed or obstructed pupil, and may, therefore, often be advantageously performed.

We ought not, however, to be forward in proposing iridectomy even in stubborn cases of anterior internal ophthalmia. Cases have come under my notice in which disastrous results, or, at the best, results inferior to what might have been otherwise obtained, have followed the unadvised performance of the operation. On the other hand, I have had repeated occasion to congratulate myself on the successful issue of Medical treatment, alone or aided only by the evacuation of the aqueous humour in cases of the most threatening character. In one case which lately came under my care, the opinion had been given that iridectomy was the only remaining resource. Notwithstanding this, a cure was effected without even the aid of *paracentesis corneæ*.

Too hasty a proposal of operations, let me observe, in conclusion, betrays imperfect command of the resources of Medical treatment. To operate is far easier than to conduct Medical treatment properly—it is to cut the string instead of untying the knot.

It is sometimes said that the Medical treatment injures the health of the patient. I deny this, if the treatment be properly conducted. No doubt the health of the patient is often injured by ill-conducted treatment; but ill conducted treatment, at the same time, fails to cure the eye. You may be sure that the eye will never be cured at the expense of the general health. In my experience, when an affection of the eye has been cured, the general health has been at the same time, improved by the treatment.

In illustration of what I say, I may mention a case which occurred to me a great many years ago. It was a relapse of very severe gonorrhœal rheumatic iritis, in which the general health was so much benefited by the Medical treatment employed for the cure of the eye, that the patient, some years afterwards, finding himself out of condition, wanted me to subject him again to similar treatment, although the eye itself continued well.—*Medical Times and Gazette, August* 6, 1864, *p.* 139.

81.—CLINICAL DATA RESPECTING CEREBRAL AMAUROSIS CONNECTED WITH THE USE OF TOBACCO.

By Jonathan Hutchinson, Esq., Surgeon to the London Hospital, and Assistant Surgeon to the Royal London Ophthalmic Hospital.

[The opinion has been long entertained that tobacco is a frequent cause of loss of sight. This effect of its constant use is noted

by Mackenzie in his "Diseases of the Eye." At the end of a very long and very able paper, Mr. Hutchinson sums up the subject as follows:—]

1. That there is a special form of cerebral amaurosis usually unattended by other permanent disorder of the nervous system, in which white atrophy of the optic nerves supervenes.

2. That there is little doubt that this form of amaurosis commences centrally, the alterations in the supply of blood to the optic nerve and retina being secondary.

3. That in the early stages of this disease, sumptoms of functional brain disturbance are usually present; somnolence, headaches, giddiness, slight stupor, and sometimes vomiting.

4. That the symptoms last-mentioned almost always pass off when the amaurosis is more advanced.

5. That the rapidity of the extinction of sight is usually in ratio with the severity of the other cerebral symptoms.

6. That this form of amaurosis may occur at any age, and in either sex.

7. That it now and then follows exanthems, congenital syphilis, disturbed menstrual functions, great anxiety, injuries to the head, &c.

8. That it occurs in large excess in adult males, typical and uncomplicated examples of it being indeed very infrequent in women.

9. That in men it is sometimes attended by disturbance or suspension of the generative function, but that in the great majority of cases no such connexion is proved.

10. That there is no reason to think that it is frequently consequent on masturbation, or that it occurs in any especial connexion with acquired syphilis or intemperance.

11. That no adequate explanation can be afforded of the clinical fact that men suffer from it much moreoften than women.

12. That it does not occur in connexion with any special occupation.

13. That a large proportion of those who suffer from it have been smokers.—*Clinical Lectures and Reports of London Hospital, vol.* 1, 1864, *p.* 81.

82.—A NOTE ON REFLEX DISEASE OF THE EYE, OF TRAUMATIC ORIGIN.

By J. Vose Solomon, Esq., Surgeon to the Birmingham and Midland Eye Hospital.

The Mechanical Irritation of an Orbit from which the Globe has been removed is capable of Producing Symptoms of Reflex Disorder in the Previously Healthy (?) Eye of the opposite side.—W. V., a

Sloughing sores—sloughing phagedæna—are more common, and are almost invariably associated with a bad habit of body of one kind or another, and, after cauterization, are best treated by the tartrate of iron, both locally and internally, as Ricord long ago pointed out.

Buboes.—It is acknowledged to be useless to attempt the repression of a specific bubo, and as it is impossible to foretell whether any given bubo accompanying a venereal sore will prove to be specifically infected or not, it would seem to be prudent never to attempt repression at all. The result of such preventive measures as are usually recommended, viz., leeches, blisters, low diet, antimony, and other similar antiphlogistics appears to me to be as unfavourable both to the part and to the system as any that follows suppuration itself, even when they happen to be successful; but when they fail, the strength of the system has been wasted to no purpose, and a bubo remains, slow in its progress towards recovery, and, by its exhausting discharge, often developing any lurking tubercular tendency. As soon as a patient with a primary sore begins to have pain and swelling in the groin with other symptoms indicative of incipient bubo, it will generally be found that the best practice is to apply hot fomentations and poultices, to enjoin absolute rest of the part, at the same time to diminish in no respect our care for his general health, and, if pus forms, to make a small but dependent opening the moment its presence is detected. I am opposed to waiting until more complete suppuration shall have occurred, as well as to the practice of "free" incision, and could easily adduce cases in support of what I deem to be the more suitable treatment.

It may be concluded, that the moment pus is detected in a bubo it ought to be evacuated, and by a small incision: the latter being advisable in all cases, first, for the sake of preserving appearances, and, secondly, for the limitation of the extent of surface to be infected if the pus should prove of a chancrous quality. This point may always be determined in the course of a few days by the appearance of the opening. If it show a tendency to heal, we may be sure that we have not to do with a chancrous bubo, but if it have a red, irritable, ulcerating aspect, or if its margins become ash-coloured and sloughy, the case is otherwise, and the part should be dressed with a strong solution of nitrate of silver, sulphate of copper, black wash, or or some similar application. Injections of the same should likewise be made into the interior of the bubo, and this treatment should be continued until the specific nature of the ulceration has been eradicated.

But, unfortunately, patients frequently avoid applying for assistance until the mischief has been done, and sometimes also

we fail to detect the presence of pus early enough to enable us to follow this line of practice. In such cases, when we make the opening and introduce a probe, we find that it passes freely between the gland and the skin, showing that the subcutaneous tissue has already, so far, been destroyed, and the best practice then is to divide the skin by a single or a crucial incision, so as fully to expose the gland. The skin being then retracted and most carefully preserved, the gland should at once be destroyed by the chloride of zinc or some other equally powerful escharotic, whilst nitric acid should be applied to such of the surrounding parts as may have been infected; and when the sloughs separate, and the part again puts on a healing appearance, the skin should be drawn over it and union be promoted. It is really surprising, sometimes, to see with how little deformity a man may thus escape, even though the incisions at different times may have extended for several inches, and so many as three or four glands have been destroyed. It may, perhaps, be objected that sinuses are liable to follow upon small openings of the kind I have recommended, but, without entering into an examination of the process by which sinuses are formed, which, however, would probably suffice to refute the objection, I may perhaps be permitted to lay some stress on the fact, that I have never once observed a sinus in the groin to be so produced.

With reference to the general or constitutional treatment of venereal sores and buboes of the non-infecting kind, my belief is that measures of depletion are never required or even advisable. On the contrary, if the patient's health chance to be good, we should endeavour to keep it so; but if it be already in a bad state, it is almost needless to add that a tonic method of treatment is indispensable.

I shall now proceed to the consideration of the indurated chancre, and of constitutional syphilis.

Until an indurated chancre has been followed by enlargement of the lymphatics in the neighbourhood, I am of opinion that it is both justifiable and expedient to obtain the destruction of the part affected by it, for which purpose excision is especially applicable when the sore happens to be seated on any part which, like the prepuce, admits of ablation without detriment or disfigurement to the patient. I make this statement with the utmost possible deference for those observers who affirm that it is useless to extirpate an indurated chancre. I do not pretend to deny that most frequently, when the induration has become manifest, the entrance of the poison into the system is inevitable, and has perhaps already taken place; but I think it is an error to conclude that the induration is the result of the general contamination and a proof of it. For, if it were so, why should

it occur only once? why should we be unable to reproduce it by a subsequent inoculation? why should not every superficial solution of continuity occurring at this period also undergo the same process? and why should it occur only at the site of inoculation? It would seem to be more probable that the specific induration is a strictly local process, dependent, it may be, upon the conjunction of several conditions; of which, however, the following may be regarded as the chief:—First, the constitution must have been previously free from syphilitic infection. It must not have undergone that kind of leucocytosis which the syphilitic virus produces. Indeed, every leukæmic state seems to be adverse to the process of induration: for we find that in women, in whom a chloro-anæmic or leukæmic state is more common than in men, the induration of chancres is much less frequent; and it is also observed that a chloro-anæmic state of the system, however produced, delays the specific induration even in men. Secondly, a certain degree of activity or concentration of the virus seems to be necessary; for, according to several observers, the induration produced by inoculation through the medium of the blood, or with the fluid of certain secondary lesions, is not so well marked as that which results from the action of the virus implanted directly from a chancre. Thirdly, certain purely local conditions seems to be favourable, although by no means essential. Thus the process of induration is usually much more complete on the prepuce and on the lips, for example, than it is on the trunk, and it may perhaps be owing to a similar special aptitude or affinity that the lymphatic glands are so constantly and readily affected by it.

The sequence of events in syphilis would seem to be nearly the following:—

1st, Induration of the part inoculated, equivalent to increase of virus by molecular or cell development.

2nd, Absorption and transmission of virus to the contiguous glands; induration and irritation of these organs; leucocytosis; and, consequent thereon, modification of nutrition, owing to which the capability for induration diminishes, and for the most part ceases.

3rd, Passage of the virus into the blood; its elimination through the skin and mucous membranes, and, consequently, eruptions and ulcerations.

4th, Absorption by the lymphatics of the syphilitic virus not wholly eliminated; irritation of other glands; transmission of virus from one set to another; further changes in the blood; lesions of nutrition; repeated passage of poison into the blood, followed by fresh eliminative efforts; and so on.

5th, Elimination failing; alteration in quality of virus and its deposition in certain structures; profound lesions of nutrition.

Syphilis in fact seems to stand midway between small-pox and cancer,—the capacity for elimination of their respective morbid poisons constituting the main difference; and certainly, if we accept the proposition of Virchow, that "every dyscrasia is dependent upon a permanent supply of noxious ingredients from certain sources," and that the blood neither is nor can be its real seat, and then look to the fact that the lymphatic glands are the only structures which in secondary syphilis remain permanently indurated, we are almost forced to the conclusion that they constitute "the local depots from which new quantities of noxious matter are continually being introduced into the blood." This theory is certainly more tenable than that which supposes the poison always to exist in the blood, and at certain periods, viz., at the outbreak of cutaneous or mucous manifestations, to undergo a kind of fermentation or zymosis; but it would occupy too much space to pursue it farther in this direction for the present.—*Edinburgh Medical Journal, July* 1864, *p.* 10.

84.—TWO CASES OF SYPHILIS SHOWING A PROLONGED INCUBATION PERIOD AND COMMUNICATION OF THE DISEASE BY SECONDARY CONTAGION.

By Berkeley Hill, Esq., Assistant Surgeon to University College Hospital.

On the 5th March, 1864, John J., aged thirty-three, ostler, applied, among my out-patients, for relief for a painful affection of the right eye. He said that about fourteen days before Christmas last, while fighting, he received a blow on the right eye and cheek, which drew blood; his antagonist sucked the wounds for him, after which they quickly healed, and, as far as he knew, the marks also disappeared. He experienced no further inconvenience until the latter end of January, when he observed some pimples appearing where he had been hit, and presently some scabs fell off, leaving a reddish pimple beneath each; but there was no ulcer, nor any discharge from these pimples. His eye next became troublesome, growing red and bloodshot, and smarting occasionally; and on Feb. 1st he applied for some eye-water, with which he bathed his eye, but without improvement. Finding the eye-water of no service, on the 5th March he came to me, anxious for other treatment. I examined him, and found the following state of things:—At the outer corner of the right eye was an oval coppery patch, slightly elevated from the skin around it, especially so at the edges; it was smooth and dry. There was also about the middle of the margin of the lower eyelid another smaller patch, which desquamated freely, and whence the eyelashes had dropped out. Two

more similar patches existed on the cheek, over the malar bone. All these tubercles were indurated, and surrounded by an areola of coppery tint. The conjunctival membrane of the right eye was congested and the palpebral part thickened; whence the discomfort for which relief was sought. The lymphatic glands beneath the jaw and in the neck on that side were severally enlarged, but painless. A coppery roseolous rash extended over the forehead and trunk. The penis was quite free from sores or cicatrices of any kind, and there was no history of any. The inguinal lymphatic glands were also quite normal; likewise those of the body generally, with the above-mentioned exception of the submaxillary ones. Though he complained of sore throat when questioned, the soft palate and uvula were only somewhat congested. He was ordered to take four grains of blue-pill with a little opium twice daily, and to attend frequently at the hospital.

On the 12th of March I saw him again. He was then under the influence of mercury. His gums were swollen, his breath was fetid, and he had a bad taste in his mouth. His throat was not sore. The areolæ round the hardened tubercles less spread and paler; the roseola much fainter; more of his eyelashes had fallen. To continue his pill.

March 19th.—Induration of the tubercles less defined, and the glands under the jaw smaller. He looked paler, and felt weaker than before—probably from the combined effects of scanty diet with mercurialization, as he had been out of work that week. I ordered him to take a little quinine-and-iron, and to take his pill once a day only.

30th.—The glands under the neck were less enlarged, the coppery tint of the patches on the face were much fainter, and the induration withering. The throat still not sore; and no other eruption visible on the body.

April 20th.—The coppery discoloration remained in two places only, and was of very small extent. The induration of the tubercles was perceptible in one cicatrix only. The eye was quite well, except that the lashes had not grown again. The lymphatic glands were of their usual size, and the man felt quite well. Having found work in the country, he had been unable to show himself at the hospital, and had not taken medicine for a fortnight. He was ordered to continue his pill once every day for a little time longer.

On the 26th of March the patient led in his late antagonist for examination, of whose condition I took the following note: —F. M., aged thirty-one, a wheelwright of intemperate habits. He stated that when he sucked John J.'s eye he had a sore at the corner of his mouth (where there is one still), and that he had some sores on his penis at that time, which had existed for

six weeks or two months before the time at which he gave the blow to John J.; but they did not trouble him much. However, he recollects that the lumps now in his groin were there then, and that they were rather tender. He has never observed any rash on his skin or soreness in his throat, and has felt very well ever since. On examination, the sore proves to be a fissure at the left angle of the mouth, with one or two enlarged papillæ round it, which are moist and scaling, not possessing any induration however. There is no ulceration on the mucous surfaces of the mouth and fauces; the lymphatic glands are not enlarged under the jaw, or at the back of the neck. The body is free from eruption of any kind, save that one or two acne spots on his shoulder have a coppery tint. On the penis, behind the corona glandis, are two scars, with well-marked induration—the sites, the patient says, of the sores he had last December. The lymphatic glands in both groins are plainly enlarged, but not at all tender, and the skin covering them is of its usual colour. He has never taken any medicine for his disease; and the only inconvenience of which he has been conscious is the persistent sore on the mouth. I ordered him a small quantity of bichloride of mercury, with iodide of potassium. This treatment has been pursued during the month of April, and the sore on his mouth has healed. The induration has much diminished on the penis, and the patient has preserved his good health.

These cases show very clearly:—First. That there exists an incubation period in syphilis between the moment of inoculation and the manifestation of its effects, which has a duration not very exactly known. In the cases of V. Bärensprung, where inoculation was purposely practised, the incubation lasted twenty-eight or twenty-nine days; Sigmund and Rollet both estimated it at about three weeks, with extremes of fourteen and forty-two days; Hunter relates an instance of two months intervening between the time of contagion and the appearance of the disease; and Aimè Martin, in his thesis for 1862, mentions the case of a girl incarcerated in the St. Lazare Prison, in close confinement on the 15th July, 1861, on whose labium a syphilitic sore made its appearance on the 25th September following—a period of seclusion of seventy-two days. The case I am relating had a long period of incubation, about five weeks or rather more, as nearly as can be estimated, but not of an extreme length if compared with those related by other observers. Secondly. The kind of primary lesion produced by the disease when other disturbing causes are absent is here well shown. The indurated tubercles grew at the point of inoculation, and never ulcerated, perhaps because they were free from irritation, resulting from the moistening by secretions, urine, &c.; though I do not mean that such irritation is in all cases the cause of

ulceration in primary syphilitic affections, but that these are probable causes of it in many instances. These papules or tubercles—for some resembled one and some the other—had been slowly developing themselves for six or seven weeks, and had become indurated to such an extent that one was as large as a sixpence; yet their surface was unbroken in all that time. In this case at least the primary affection bore no resemblance to a Hunterian chancre. Thirdly. The disease was communicated by contagion with secondary secretions—namely, the fluid exuding from the sore at the angle of the second patient's mouth was inoculated into the open wounds of the cheek of the first patient; and that this sore was a secondary affection is shown by the pre-existence of the primary disease in another part of the man's body, which, since we cannot produce a primary lesion of syphilis on a person already subject to the disease, prevents the possibility of the sore at the mouth being one.

I have brought forward these cases for the readers of the Lancet, because they are examples of an unusual mode of communicating the disease—namely, by suction of open wounds, though a precisely similar means of contamination takes place when nurses are inoculated by their foster-children, in which cases the primary lesion is a chancre on the breast.—*Lancet, June* 18, 1864, *p.* 696.

85.—ON THE TREATMENT OF SYPHILIS BY MERCURIAL VAPOUR.

By E. W. Pollard, Esq., Brompton.

The milder influence of mercury when endermically applied, compared to the effects of its internal use, has long been acknowledged. Its inunction, except for personal reasons, was generally preferred to its administration through the alimentary canal. To avoid the inconvenience of inunction, the late Mr. Thomas Pearson employed the red sulphuret of mercury (cinnabar) in a state of vapour, but which was found to produce irritating effects, and was consequently generally abandoned in this country. Mr. Henry Lee, a successor of Mr. Pearson at the Lock Hospital, has recently revived this mode of treatment with great success, substituting calomel for cinnabar, and adopting a simple apparatus by which the calomel is volatilized, and mixed with the vapour of water.

Sir Ranald Martin also long since insisted upon the necessity of making the skin a perspiring and absorbing organ, in order that medicine may act upon the general system when applied to it. The skin, however, in certain persons, especially when thickened by disease, will not absorb readily. Acting upon the

suggestion of Mr. Henry Lee, I have lately tried, upon a somewhat extensive scale, the effect of softening the skin by producing gentle diaphoresis previous to employing the vaporized calomel. Possessing great facilities for this purpose in our establishment, we have modified and improved upon the apparatus employed by Mr. Lee—first by allowing the patient to remain for a short time in the tepidarium, when the skin, becoming moistened, is prepared for the action of the metallic vapour, which is applied in a carefully-constructed box, where the calomel is volatilized at a regulated temperature with the vapour of water, and the sublimed particles are equally diffused and deposited on the person of the patient. Inhalation not being always necessary, the head is excluded. For some months we have had daily opportunities of observing the effects of fumigation so carried on in the cases sent to us by our medical friends, and by their permission we are enabled to record the following cases. In these records our duty has been strictly limited to a faithful statement of facts; we have indulged in no speculations, leaving the profession to draw their conclusions.

"A gentleman, who had come from abroad on purpose to obtain the benefit of medical advice, had taken all the ordinary internal remedies for constitutional syphilis, but still remained a sufferer from most painful and intractable ulcerations of his legs, and at times most severe pains in his head. It was found by him that the use of the calomel bath in the ordinary manner produced very little effect. Mr. Henry Lee therefore recommended him to have a certain amount of diaphoresis induced previous to taking the calomel bath. He commenced with one three times a week (half a drachm of calomel). He speedily found relief from his pains, and the ulceration rapidly healed up. He then went into Scotland for two or three months. Upon his return he came to the baths, and stated that he continued well, and has now gone abroad."

"*Inveterate psoriasis.*—Mr. A., a young man in the army, had been afflicted with a most inveterate form of psoriasis for nearly nine years. The eruption extended over the whole body and extremities. The scales were so thick as to make motion of the arms difficult, and he was unable to perform his duties in the service. He has been under every kind of treatment; has taken large quantities of arsenic, iodide of potassium, &c., but only experienced slight temporary relief from the remedies. His gums were spongy, with great fetor of the breath. There were doubts whether the affection had a syphilitic origin.

"Previous to his coming to London in March last he had taken several calomel baths with the ordinary apparatus, with some improvement. Mr. H. Lee ordered this patient to take

the calomel baths (half a drachm), to be preceded always by a moderate amount of perspiration in the hot room (temperature 120°). In one week after the commencement he was greatly improved; and he was ordered to continue them daily. In three weeks he was free from all scales, the skin was quite smooth, and only a slight discoloration remained. He continued to take the bath for some time, and has had no return of the complaint. His general health has greatly improved, and he considers himself effectually cured."

"Mr. D., a medical practitioner, had primary symptoms thirteen years ago, which readily yielded to inunction. Sore-throat and eruptions followed, which were relieved by the iodide of potassium, in combination with tonics. Subsequently the tongue became tuberculous, fissured, and ulcerated, rendering the taking of food painful. The ulcerations healed after long-continued treatment with the iodide, but the tubercles and indurated fissures remained. If the iodide were omitted for any length of time, the ulcerations were certain to return; so that he was always obliged to be more or less under the influence of the remedy, of which he must have taken many pounds. Mr. Henry Lee advised the calomel bath, with the previous perspiration. The tubercles began to subside after the third bath, and at the end of three weeks very little remained of the tubercles. The bath was taken very irregularly. He had then a slight return of the ulcerations, which yielded immediately on the resumption of the bath. For some time past he has had no return of this troublesome disease, and has not taken any of the iodide."

"Mr. H. had a primary sore four months ago, which was followed by sore-throat and eruptions. He was treated in Paris with the photo-iodide of mercury, but not being satisfied he came to London. The eruption is over the body and face, with some sore-throat. Dr. Cahill and Mr. H. Lee recommended a calomel bath (half a drachm of the mineral) daily. At the end of three weeks the eruption was entirely removed."

"Mr. S. had a chancre on the penis, accompanied with syphilitic bubo, which suppurated. There was a dark copper-coloured eruption over the whole body, which had existed for several months, and first appeared after a previous syphilitic affection. This patient was in a weak and debilitated state. His health improved under a short course of tonics, and he was then ordered to take the calomel bath. The chancre disappeared after six baths, the bubo healed up, and the eruption was entirely removed. At the present time he has not a trace of disease upon him, and has not, in fact, been in such good health for a very long period. This patient had also been very

deaf since his first syphilitic attack ; he has quite recovered his hearing."

"Mrs. S. This patient was contaminated by the previous one. No primary sore could be detected. Had syphilitic bubo, sore-throat, and eruptions over the whole body. She took the calomel baths for three weeks, at which period all the symptoms had disappeared, and she remains quite well."

"W. H., a soldier, had a large sloughing chancre. The vapour of calomel was applied directly to the surface of the chancre. After three applications the ulceration stopped, and the surface assumed a healthy appearance. He was only able to take twelve baths, being under orders to embark on foreign service. The chancre was healed up, and all induration had disappeared."

Dr. Cahill has kindly sent us particulars of some of the cases treated by the hot air in combination with the calomel bath.

"*Secondary syphilitic sore-throat.*—Mr. D. had been subject to several attacks of severe dyspnœa. On examination of the throat I found traces of the previous disease, for which he had taken iodide of potassium. Ordered a quarter of a grain of bichloride of mercury and two minims of tincture of opium twice a day, under which treatment he was much benefited ; but still the disease constantly recurred, yielding to the same remedies. I then requested him to take the calomel baths, and to have slight diaphoresis produced previously by remaining in the hot room for ten minutes. Mr. D. continued the baths regularly three times a week for three weeks, at the end of which period he became entirely free from his complaint, and has had no return."

"*Secondary sore throat, with rash.*—Mr. C. On being called to this patient, I found him suffering from gonorrhœa, with severe orchitis, which yielded to the ordinary treatment. On the phimosis being subdued a sore was found on the glans, beside the frenum. Not having all the characteristics of an ordinary chancre, which, however, healed on the application of the red precipitate, still leaving a thickened, warty base, I ordered him quinine and steel for some time. At the end of a few weeks he returned to me with a severe sore and copper-coloured eruptions. I then put him under the proto-iodide of mercury, and inunction of half a drachm of mercurial ointment every night. The disease was checked, but did not make much progress towards recovery. I then recommended him to commence the mercurial fumigations and the hot-air bath. After taking twelve baths all the symptoms disappeared, and he has continued well now for several months."

"*Secondary sore-throat; rashness followed by deafness.*—Mr. E. contracted gonorrhœa in 1862. Subsequently an excoriation (or chancre) was discovered, followed by pain in his limbs and sore-throat. He was sent to Brighton for bathing, from which place he returned quite deaf. He first came under my care at the latter period. I found induration where the sore had been. This, with the length of time that had elapsed since his first being taken, confirmed me in the supposition of the syphilitic taint. Other symptoms developed themselves, which corroborated the opinion I had formed. All the symptoms were relieved by appropriate treatment except the deafness, which remained till I ordered him to take the mercurial vapour baths, which speedily re-established his hearing."

"*Deafness following secondary symptoms.*—Mr. A., a young gentleman, had syphilis in 1862. The primary sores were treated with the exhibition of mercury. The secondary sore-throat was treated by me by the use of the iodide of potassium; and subsequently another medical practitioner put him under the bichloride of mercury. All the symptoms were removed except deafness, for which everything was tried—iodide of potassium, blisters, &c., but in vain, so that he was necessitated to resign his commission. On his return to London, at the beginning of this year, he tried by my advice the mercurial vapour-baths, from which he derived the greatest benefit. He can now hear distinctly the notes of the piano, whereas before he could only hear a confused drumming noise."

"*Tertiary sore tongue and mouth; sores on the head.*—Mr. B. had primary syphilis in 1861, for which he was treated in France; subsequently, sore-throat, rash and nocturnal pains. He has taken mercury, iodide of potassium, and the waters of Aix-la-Chapelle. At the time he came under my care he was in a miserable condition from his mouth, tongue, and cheeks, which had whitish sore places all over them, and were very painful upon taking food. The sores were partially relieved by the application of the sulphate of copper. The mercurial vapour-baths produced a most salutary result, and he has had no return of his complaint, though several months have passed away."

"*Early secondary rash and sore-throat.*—Mr. H. had syphilis in November, 1863, followed by rash and sore throat. He had been treated by mercury and iodide of potassium previously to my seeing him. A dozen of mercurial vapour-baths completely removed all his symptoms, and he has continued well up to the present time."

I might multiply cases in which cures have been effected by the mercurial bath, but enough have been cited to direct further attention to the subject.—*Lancet, July* 30, 1864, *p.* 116.

86.—THE TREATMENT OF SYPHILIS BY THE MERCURIAL VAPOUR BATH.

By LANGSTON PARKER, Esq., Birmingham.

[Mr. Parker was the first to draw attention to the advantages to be derived from combining the vapour or fumes of various preparations of mercury with aqueous vapour, and to recommend a bath, which he denominated the "mercurial vapour-bath", in which the patient was exposed to the influence of three agents—the vapour of some preparation of mercury, heated air, and common steam.]

I recommended in the first instance the vapours of the bisulphuret of mercury, the grey oxide, the binoxide or the iodide; and to these Mr. H. Lee has recently added calomel. The advantages to be derived from this mode of treatment can hardly be over-estimated; for there is no doubt about the fact, that the way to cure or eradicate syphilis is by remedies applied to the skin, and not taken by the mouth, and that the treatment by moist mercurial vapour is, in a vast majority of instances, the method to be preferred before all others. I have now personally superintended the treatment of many thousands of cases in this way, and I could record instances of success in many cases which really appeared hopeless. The preparations of mercury best suited for moist fumigations are, doubtless, calomel and the bisulphuret. In scaly diseases of the skin I generally use these combined. I have seen one case indeed of most extensive secondary ulceration, with disease of the bones of both legs, entirely cured by the vapour of the biniodide, used by mistake. Should this ever be employed, it should be used with extreme caution, and care should be taken that the vapour is not inhaled.

The mercurial vapour-bath is much more certain in its effects upon some forms of syphilis than others, and is chiefly applicable in secondary or constitutional syphilis, and especially in the scaly forms of skin diseases. It finds its application, however, in a great number of other forms of disease besides those I have mentioned. In tubercles before they are softened, in secondary ulcers succeeding rupture of pustules, and in diseases of the testes, and many forms of affections of the bones, it is exceedingly useful. The moist mercurial vapour employed in the way I have recommended is a perfectly safe remedy; it does not depress or debilitate the patient, if properly used. The disease commonly disappears without any of the usual effects of mercury being evident, and I have no doubt this is due to the diaphoresis going on during the time that the patient is exposed to the action of the vapour, and it is from the same cause that ptyalism is rarely induced.—*Lancet, Aug.* 20, 1864, *p.* 212.

87.—ON INFANTILE SYPHILIS.

By J. Vose Solomon, Esq., Surgeon to the Birmingham and Midland Eye Hospital.

[The following case by Mr. Solomon is worthy of attention.]

On the 11th of September, 1860, an infant (L. L.), 8 months of age, was admitted under the care of Mr. Solomon, for a small unhealthy ulcer, with an indurated base, situated at the inner extremity of the lower lid, close to the roots of the eye-lashes. It had been there a fortnight.

The child was somewhat strumous-looking, fairly nourished, and could not be said to be unhealthy. It had not suffered from "snuffling" or any sort of disease. The mother, who brought the patient to the hospital, was in appearance healthy, and close questioning failed to elicit a syphilitic history. The father also was healthy, and denied having suffered from sore-throat, falling off of the hair, or disease of the skin. The ulcer on the infant was considered by Mr. Solomon to be syphilitic; but, in the face of the foregoing facts, soothing topical applications only were ordered. In three days later, no amendment having taken place, quinine was ordered, and the sore to be dressed with diluted citron ointment. Change for the worse, rather than the better, having taken place, inquiry was made whether any one had been in the habit of nursing or fondling the child who was suffering from a skin-eruption or sore-throat. It was replied, "Yes; her aunt is so affected." When this lady presented herself at the hospital, she was found to be covered with copper-coloured blotches: and her tonsils were fissured with ulcers, which afforded a discharge. These diseases had been attributed to bathing in the sea, and permitted to run a natural course. The inference Mr. Solomon drew from this examination was, that the aunt, in kissing the infant, had inoculated its eyelid. The inner extremity of the lid, close to the muco-cutaneous margin, is, according to his experience, more susceptible to primary syphilis than any other part of the palpebra. Any one who has once seen syphilitic tubercle of the eyelid could not mistake it for a primary ulcer.

Small doses of mercury were now given twice a day, in combination with Dover's powder and sugar. Nevertheless, on the 28th of September, six weeks from the appearance of the primary affection, which had healed, the child's buttocks presented well-marked syphilitic blotches; and on the 23rd of October, a rather large, ill-conditioned, and deep ulcer had invaded the external labium. Syrup of iodide of iron had been ordered on the 19th, in addition to the mercury, which was given once a day only.

After a while the child's mouth presented a fissure at its commissure. An ulcer appeared on the mother's breast, and she had secondary symptoms.

The case of the infant was carefully watched by my friend and late pupil, Mr. Walker, now of the firm of Bull and Walker, of this town; and that of the mother by Mr. Baines, who attended the family, and to whom the case was referred for treatment.

Remarks.—The fact of this little patient having attained nearly the eighth month of its age before the appearance of the primary chancre, excludes all grounds for believing that the disease was contracted during the parturient process. How then was the inoculation effected, and from what source.

The answer is found in the common practice among some women of fondling children by *sputtering* upon their faces, and so strange is taste, upon the genitals and nates of infants. By these acts, the secretions of the mouth are frequently deposited upon the place of contact. It was probably in this way that the discharge from the aunt's tonsils was conveyed to the eyelid of her infant neice.

In opposition to this theory, we have the high authority of Dr. Diday, who declares he has been unable to discover evidence of the occurrence of a primary syphilitic sore as a result of inoculation from a secondary disease. The case before us is, in this respect, *unique*, inasmuch as the affection of the mouth of the suckling was a secondary non-congenital disease, and by it the nipple of the mother was inoculated. The specific character of that infection having been placed beyond dispute by the occurrence of secondary symptoms. We therefore conclude that the discharge from a secondary sore has given rise to a syphilitic ulcer, which, in its turn produced secondary symptoms.—*British Medical Journal, March* 7, 1863, *p.* 236.

88.—SYPHILITIC ERUPTIONS,

By Dr. TILBURY FOX, Senior Physician to St. John's Hospital for Skin Diseases, and Physician to the Farringdon Genera Dispensary.

The syphilitic poison once introduced into the system is apt to be followed by certain eruptive manifestations: these are only the naked-eye evidences of a deep-seated change in the system at large. The functions of various organs are deranged, "the blood is charged with a poisonous principle, and all the organs and structures supplied with that blood suffer to a greater or less extent. The brain evinces its suffering by mental dejection; the nerves by a general feeling of prostration and debility . . . . there is often neuralgia (nocturnal) . . . . the pulse is quickened . . . . the tongue coated, white, broad, and indented by the teeth. The fauces are more or less congested, the tonsils and soft palate being frequently swollen;

there is irritation of the larynx, producing a mucous cough and often nausea . . . . the conjunctiva is congested and muddy, and the whole skin remarkable for its yellowish and dirty appearance, looking as if saturated with impure and discoloured humours."

Syphilitic eruptions have certain peculiarities:—

1. There is *a history of syphilitic inoculation*, which tells its tale by the numerous symptoms (due to the circulation of the poison), noticed at the opening of this chapter; and, in addition, by the presence of cicatrices, indurations, scars, and stains about the penis and groin.

2. *Their colour.*—It is described as copper coloured; in reality "*a reddish yellow brown*" (Wilson). It is dull red at first, and becomes coppery after awhile, and as the eruptions vanish a dull red or yellowish dirty stain remains for a varying length of time. In the early stages of disease the tint may be violet, but this soon becomes replaced by the coppery hue.

3. *Their form*, which is peculiarly circular. This feature is not perhaps of much moment, *per se*, but in conjunction with other points is of some aid in a diagnostic sense. It may be destroyed or prevented by the confluence of other patches, but even then the typical form can be recognised in the component parts of the patch of disease. Syphilitic *scaly* eruptions are composed usually of small circular spots. Scales or squamæ are thin, oftentimes very fine, grey, and few in number; fewer and lighter than in the typical aspects of eruption. Crusts are thick, greenish, or black, and firmly adherent. Vesicles are flattish and do not readily rupture. Ulceration is a common feature; the ulcerated surface is ashy grey, covered with a pultaceous substance, and bounded by sharply cut edges. Cicatrices are whitish and reticulated, or dull and brownish, leaving in their place on disappearance a yellowish stain. Fissuring is marked in the squamous forms.

4. *The Absence of Pain or Itching.*—With the exception of mucous tubercles and some forms (moist) of infantile syphilis, syphilodermata are generally unaccompanied by heat or pruritis during their existence. In their tubercular forms, just prior to ulceration, a process of softening, apparently depending upon a low kind of inflammation, goes on, and the tubercles may be painful and tender.

5. *Their Polymorphism.*—This is very characteristic of syphilitic disease. Several different kinds of eruption may co-exist, and this is a rule of general applicability, if we except the squamous class of eruption. It is no unusual thing to see papules, pustules, and squamæ co-existent on the same syphilitic subject.—*Dr. Fox on Skin Diseases, p.* 267.

MIDWIFERY,

AND THE DISEASES OF WOMEN, ETC.

89.—INDUCTION OF LABOUR BY DR. BARNES'S DILATING BAGS—ARTIFICIAL DELIVERY—SUCCESSFUL RESULT.

By William Elliott Porter, Esq., Lindfield, Sussex.

During the summer I was engaged to attend Mrs. ——, in her fourth confinement. She is a short, thick-set woman, aged thirty-four. Her first child was born naturally, alive, after a very tedious labour. The second was alive also, delivered with difficulty by the long forceps after the head had been at the brim of the pelvis several hours. This was my first attendance on her. In the third pregnancy I recommended the induction of labour at the thirty-fourth or thirty-sixth week; but the patient would not submit to it, and she went her full time. I delivered her under chloroform by turning, after having failed with the long forceps. This child was dead.

I would here observe that in a case I attended with a Professional friend a few weeks ago we succeeded in delivering by turning, after having been unsuccessful with the long forceps. This child we lost also. In the fourth pregnancy I again proposed premature delivery; and it was consented to.

I obtained a set of three sizes of Dr. Barnes's bags: each had a stopcock and tube at one end, and on one side of the other end a finger socket. In consequence of the os uteri at this period of pregnancy being very high, I thought an introducer of some kind would be useful. I, therefore, had one made of a piece of lancewood; it was about as long and curved like a sound for the bladder. A sound would do; but wood looks less formidable than steel. I found, though not essential, it very much facilitated the introduction of the bags into the os uteri.

On August 30, at 2 p.m., I commenced by persuading one finger into the mouth of the womb. I then lubricated the smallest bag, and put the beak of the introducer into the finger socket, and laid the bag along the convexity of the introducer, where it was retained in its position by making slight traction on the tube. Thus it was passed along the palmar surface of the fore and middle fingers of the left hand, which were in contact with the os uteri, and with great ease into the uterus as

far as was required. At 2.15 the first distinct expulsive effort took place, and shortly afterwards the bag was expelled; the second was then introduced, and came away about 3.15. The pains were now frequent. I waited, perhaps, half an hour, when they flagged a little. About 4 o'clock I introduced the third bag, which was not retained many minutes. The os was at this time as large as a crown piece, and the pains were quite established. They increased in strength till 7 o'clock, when dilatation being complete and the membranes protruding, I ruptured them. The head came to the inlet, and there remained. The pains were most severe and frequent for more than an hour; no progress was made; and the patient was getting exhausted. I gave chloroform, and delivered easily by the long forceps at 8.30. Child alive.

The recovery was unchecked. Both mother and child at this date (September 30) quite well.

The case above recorded affords additional evidence of the effectiveness of Dr. Barnes's dilating bags; and the Profession are, I think, much indebted to him for a very simple and safe means of inducing labour. It also instances the advantage of turning over the long forceps; not that I for a moment repudiate the long forceps. I think where there is a possibility of delivering by them they should be used, because they give the child a greater chance of life than turning does, and are more easily applied than the child turned when the membranes are ruptured and the uterus in strong action.—*Medical Times and Gazette, Oct. 22, 1864, p. 435.*

90.—ON THE OPERATION OF TURNING IN CASES OF DISPROPORTION BETWEEN THE FŒTAL HEAD AND THE PELVIS.

By Dr. GRAILY HEWITT, Physician to the British Lying in Hospital, and Assistant Physician-Accoucheur to St. Mary's Hospital.

[In cases of pelvic narrowing, or of disproportion between the fœtal head and the pelvis, there are always a certain number of alternatives. First, to wait and see what nature can do without assistance; second, to apply the forceps; third, to perform the operation of turning; or fourth, to perform craniotomy. Respecting each of these Dr. Hewitt proceeds to make some remarks, and observes of the operation of turning.]

By the adoption of this alternative we avoid the extreme disadvantage of destroying the child necessarily involved in the performance of craniotomy. With respect to the value of the operation of turning in these cases of slight deformity, I would state in the outset that it is my belief that

turning is destined to replace the operation of craniotomy in a very considerable number of instances. Turning is a comparatively old operation, and was formerly much resorted to, but it fell into disuse on the invention of the forceps. Dr. Simpson has revived the practice of turning, and set forth the advantages which will accrue from its adoption in a very admirable and valuable paper, the arguments and deductions contained in which, although attacked, have remained unanswered. More recently the matter has attracted the attention of other distinguished authorities. Dr. M'Clintock has brought before the Obstetrical Society of London a valuable contribution of facts bearing on this interesting question—viz., a series of cases in which the operation of craniotomy would have been performed had not turning been had recourse to. The result was, that in seventeen such cases nine children were extracted alive. Dr. M'Clintock comes to the conclusion that turning has been overrated; but it appears to me that the facts related by Dr. M'Clintock himself are hardly consistent with this conclusion, for these nine children which were extracted alive would otherwise have been destroyed. Dr. Barnes has published a series of four cases in which the value of turning is similarly scrutinized. In the first of these cases, after induction of premature labour, turning was employed, the child being saved; in the second, the pelvis was only three inches and a half, and the child, at full term, was extracted alive; in a third case there was a footling presentation, and the child was dead; in a fourth case the pelvis was three inches and a quarter, and the child was extracted alive. Professor Wilson, of Glasgow, has also published cases illustrative of the advantages of turning under these circumstances.

The mechanical advantage obtained by turning arises from the fact, pointed out by Dr. Simpson, that the diameter of the base of the fœtal skull, which has first to pass the brim of the pelvis after the operation of turning, is less than that of the upper part. Further, the transverse diameter, which is the one requiring to be lessened, is capable of being reduced to a greater extent when the head is made to enter the pelvis with the base lowest; the other parts of the head are also more readily moulded to the shape of the pelvis in such a way as to allow of its passage through the brim. Dr. M'Clintock does not, as I do, admit the validity of Dr. Simpson's arguments on this part of the subject. Another obvious advantage derived from turning is, that we have the body and lower extremities of the child to pull by, although I need hardly remark, we cannot make use of this advantage to its full extent without danger to the child.

In comparing turning with the high forceps operation, the first remark which is to be made is that, on account of the con-

tracted condition of the os uteri often present in cases of pelvic deformity, it frequently happens that the forceps cannot be applied. In these cases the operation of turning is, however, generally practicable, except in some very few instances, and even then it is only a question of waiting a short time. In turning, carefully performed, we avoid the liability to laceration of the uterus connected with the application of the forceps in the high operation. On the whole, taking into account the average dexterity of operators, there would seem to be less danger of doing harm by the hand in turning than by the steel instrument in the forceps manipulation. What would be the result as regards the child of the two operations, supposing there were equal skill and dexterity brought to their several applications? Without doubt, under such circumstances, the forceps operation is the better of the two, because in extraction after turning the child is liable to suffer in a variety of ways. The pressure of the forceps does not appear to exert any injurious effect on the child's head; whereas, in extraction after turning, the head and neck are often so twisted in their passage through the pelvis that life is destroyed. The pressure of the head on the funis is probably often the cause of death, but in many cases the death of the child is more probably dependent on injury to the neck. While, therefore, the delivery can be effected more easily, taking the run of cases, by turning in these cases of deformity, this mode of delivery is not so safe for the child as the use of the forceps. That the use of the forceps (the high operation) is attended with considerable difficulty in many cases I have already pointed out, and this it is which renders the acceptance of the other alternative necessary. Turning is an operation which I regard as comparatively safe, for the accidents and bad results which have been ascribed to it do not belong, I believe, to the operation itself. At least, I have never myself seen any untoward result therefrom.

I will now conclude with a few observations on the method of operating in cases where turning is resolved on. How long may you wait before you give up the idea of turning? I believe it can be performed very late. A considerable degree of impaction is no bar to the operation, for when the hand is introduced into the vagina the head generally recedes before the hand with a readiness which is surprising. Contraction of the uterus is a difficulty, but not an insuperable one. I do not consider chloroform to be absolutely necessary, for I have performed the operation under circumstances otherwise very unfavourable without giving it; but it is generally advisable to administer it. The bladder and rectum must be emptied. In all cases it is necessary to bring down both legs; I have seen great difficulty produced by neglect of this precaution. In some few cases you

may fail, after turning, to bring the head through the pelvis. Craniotomy then becomes necessary; but the operation under these circumstances is not difficult. In extracting the child, it will be found that a lateral motion, together with extraction in the direction forwards, will facilitate the passage of the head. The great point is to delay the first part of the extraction, but to hurry the delivery of the head. The method of turning—combined internal and external version—recently introduced by my esteemed friend, Dr. Braxton Hicks, will doubtless prove of much service, especially in cases where we are called early to the patient, and where the membranes are unruptured. This method avoids necessity for introduction of the hand into the uterus. In cases, however, where the waters have escaped the operation in question is less applicable, the fœtus having become more fixed, and the uterus more tightly contracted around it. By careful and steady introduction of the hand into the uterus, the operation of turning can be effected even after the lapse of a very considerable time from the commencement of the impaction. —*Lancet, Aug.* 27, 1864, *p.* 232.

91.—ON SHOULDER PRESENTATIONS OF THE FŒTUS.

By Dr. JOHN CHRISTIE, Lecturer on Midwifery and the Diseases of Women and Children, Aberdeen.

Shoulder presentations are, in certain circumstances, among the most dangerous occurrences which present themselves in midwifery. In a woman who has already borne children, in whom the pelvis is roomy, the membranes unruptured, and the os uteri dilated or dilatable, or where the membranes have only just given way, and the uterus has not yet contracted firmly round the fœtus, little or no difficulty is usually experienced in turning the child, and completing its extraction in a brief space of time. But it is far otherwise when the pelvis is narrow, or the liquor amnii has been for a long time discharged, and the uterus has, consequently, come to be closely contracted around the body of the fœtus, even when the os uteri is fully dilated, or, if not so, readily gives way to the dilating force of the operator's hand.

But, setting aside the more common presentations of the shoulder, and the consideration of the circumstances which may complicate them, and render their treatment difficult, I would direct attention to a class of cases which do not seem to have been much noticed by obstetricians. This is possibly, of late years more especially, due to the simplicity aimed at in describing shoulder presentations. Madame La Chapelle and Nægele were undoubtedly right in limiting malposition of the full-grown living fœtus to arm and shoulder presentations. The

latter, also, judiciously divided these malpositions, according to the order of their occurrence, into two, viz., the *first position* of the shoulder, in which the back of the fœtus, compared with its anterior surface, is turned more than twice as often to the anterior wall of the abdomen of the mother; and the *second*, in which the same surface is turned towards the posterior wall. In either of these positions, we are taught that the head lies towards the one or the other iliac fossa, and the body in an oblique direction over to the other side, the presenting shoulder forming the most depending part of the fœtus, or that with which the examining finger necessarily first comes in contact.

In the great majority of instances this is true, but there are cases in which the shoulder is the presenting part, and yet the body of the fœtus does not lie in the transverse direction to anything like the degree almost universally assumed in regard to shoulder presentations. Smellie, in this, as in so many other points of practice, seems to have been far more accurately informed than either his contemporaries or successors. In his "Sett of Anatomical Tables," &c., (London, 1754), the thirty-second plate reprsents a shoulder presentation with the left arm prolapsed, and the uterus closely contracted around the body of the fœtus. In this state of matters, the uterus with its contained fœtus forms a roundish mass, having its greater diameter running from the right side somewhat obliquely up towards the left; and here we can, for the most part, move "the fœtus with the hand, so as to turn the head and shoulders to the upper part, and the breech and legs downwards."

But Smellie shows, farther, that the shoulder may present, and the fœtus nevertheless occupy a very different position in the uterus than that commonly ascribed to it. To understand this, let us see under what presentations nature is generally believed to be of herself able to effect the expulsion of the fœtus. Wherever, accordingly, the long axis of the fœtus corresponds to the long axis of the uterus, no matter whether it be the vertex, the face, the breech, or the feet which presents, experience has fully proved that labour, as a rule, terminates without any interference on the side of art with the view of removing obstacles to its due progress. True, Dr. Churchill, with others, still ranges face and breech presentations under the head of "natural labours" but when he tells us of the former, that "of late years it has been established as a rule, that assistance is unnecessary merely on account of the malposition," and of the latter, that "the less interference the better for the patient," we at once see his practice is far in advance of his logic. Dr. Murphy adopts the same arrangement of these presentations, and is so influenced by it, that, in the general case, after the labour has reached a certain stage, he recom-

mends a very "meddlesome midwifery." Dr. Tyler Smith shies the question of arrangement, but agrees generally in the views expounded by Dr. Murphy, and unmistakably, therefore, leans to the idea that pelvic are preternatural presentations, requiring in the end, as a rule, rather active interference.

But, notwithstanding the views of these able and distinguished men, it is now-a-days, on almost all hands, virtually, if not formally, admitted, that the correspondence of the long axis, both of the uterus and fœtus, is sufficient to constitute a natural position of the latter, whether it be its cranial or its pelvic end which is the presenting part; and that, wherever this happens to be the case, labour is practicable by the unaided powers of nature. Accordingly, in the so-called cases of transverse presentations, it is the aim of art to bring about this correspondence by means of certain manual proceedings, and thus reduce the process of labour as near as possible to one of its natural types.

But, even in the worst cases of transverse presentation, nature may herself overcome the obstacle to labour, as we see in the examples of spontaneous evolution and expulsion of the fœtus recorded by Denman and Douglass, and in those of spontaneous rectification and turning, by other observers. In all cases of shoulder presentation, says Braun, in order to make labour possible, the fœtus, whether mature or not, must undergo a change into the longitudinal position, or be subjected to dismemberment. These are effected in the following ways :—1. By rectification of the fœtal position ; 2. By spontaneous turning ; 3. By spontaneous evolution ; 4. By the technical turning by the head, the breech, one or both feet, and one or both knees ; and, 5. By the decapitation of the fœtus, or by embryotomy, or its evisceration. But neither of these modes include all that nature can do in bringing about a longitudinal position of the fœtus in shoulder presentation. Another means of effecting this has been almost wholly overlooked. Smellie has, indeed, admirably figured the state of things (Tab. xxxiv.) which may lead, in a shoulder presentation, to the advance of the fœtus through the pelvis with its long axis in a longitudinal direction, but he does not appear to have ever witnessed, or to have even suspected such a thing to be possible.

In speaking of the difficulties which may be encountered in presentation of the shoulder, and in contrasting the round form of the uterus, contracted close to the fœtus in the usual state of things, with another state of the organ, in which it resembles "a long sheath," with the child lying in it "lengthways" (vol. i. p. 334), the head being "reflected over the pubes to the right shoulder and back, and the feet and breech stretched up to the fundus" (Tab. xxxiv.), he describes a position of the fœtus in

which, as will presently be shown, it may be extruded by the evolution, or the other processes alluded to by Braun, taking expelling powers alone, without anything resembling spontaneous place. For example, early in the morning of the 7th January 1861, I was called to Mrs. A., 16 Long Acre, a primipara, who had been in labour from 5 o'clock a.m. of the preceding day. The os uteri was about two-thirds dilated, so that the presentation could readily be made out to be that of the cranium in the first position. In a few minutes the membranes burst, and soon after a very small but male living child was born. After separating it from the mother, when a vaginal examination was made for the purpuse of ascertaining the position of the placenta, the membranes of a second fœtus were found projecting through the os uteri, but the presentation could not be made out because of its height above the inlet of the pelvis. In half an hour, the pains, which had subsided on the birth of the first child, returned very actively, and on an examination being made the presentation was found to be a shoulder one, an arm having already come down into the vagina. At this moment the infant already born, being very feeble, required my attention for a few minutes. During my absence from the bedside the membranes ruptured, with the escape of a large quantity of liquor amnii. On now making an examination, the left arm was found to be that prolapsed into the vagina, the corresponding shoulder being at the brim of the pelvis. The nature of the case being now quite clear, I passed my right hand up along the arm till the trunk of the fœtus was reached, and while cautiously but firmly endeavouring to get at the feet, for the purpose of turning, I found the head of the fœtus to lie forwards over the horizontal ramus of the left os pubis, while the neck was so bent that it lay in contact at the same time, with the right shoulder. Moreover, the breech and feet were turned upwards to the fundus uteri; and the uterus contracted so closely and so powerfully round the body of the fœtus, in the form of a "long sheath," whenever I atttempted to force my hand onwards, that I could not pass it so far up as to reach the feet, or even the flexure of a knee. Attributing this in some measure to the rather awkward position of my hand, I tried, however, before withdrawing it, to push up the presenting part, with the view of bringing the head down to the inlet of the pelvis; but the very powerful contractions, induced by every movement I made, rendered the attempt fruitless. Accordingly, I withdrew the right hand, for the purpose of substituting the left, but on introducing it into the vagina, I found the shoulder, neck, and head pushed down into the cavity of the pelvis, all compressed together, much in the form of the breech, and advancing so rapidly under the action of very powerful pains, that I at once determined not to

proceed farther in the attempt I was about to make to turn. In a few minutes the presenting parts came down to the perineum, and in half an hour swept over it, and passed through the outlet of the pelvis, with the shoulder jammed hard against the arch of the pubes, until the upper part of the trunk, with the head turned over towards the right shoulder, and, as it were, embedded in the neighbouring parts, was born, when the rest of the body followed in the usual manner. The child was dead, and considering it was a twin, large, since it weighed fully 6 lbs.

I made a note of the case at the time, and on consulting the authorities I had at hand, I found no similar one recorded except by Smellie, with a reference to, and copy of his plate in the excellent work of Dr. Lee. And although, since the occurrence of this case, I have had several instances of shoulder presentation to deal with, there was nothing in them to remind one of its peculiarities, until, on the 22nd September last, I was requested by my friend Dr. Ferguson of the Cove, to see, in consultation with him, a case of transverse presentation, in a fisherwoman at the Downies, a fishing village on the Kincardineshire coast, and who was in labour wiih her second child.

On my arrival at the Downies, at 3 o'clock a.m., Dr. Ferguson informed me that his patient had been in labour since late in the afternoon of the previous day, and that on his arrival, about 8 o'clock of the evening, he found the left shoulder, with the arm and naval cord prolapsed, presenting, the membranes having been ruptured some time before he reached the place. As the pains were not by any means severe or active, and the os uteri was soft and well dilated, he proceeded at once to turn the fœtus. In this, however he was baffled; for although, in one or two attempts made with the right hand, he could reach one of the legs, he could not bring it down, in consequence of his hand becoming paralysed under the action of the uterus, excited by every attempt to gain his object. In this position of the case he resolved to have a consultation, and, as already stated, I joined him about 3 o'clock of the morning in the management of it; and on making a vaginal examination, I found the state of things exactly as represented by Dr. Ferguson. The uterus, too, was still acting feebly in the absence of manual interference; and but for the alarm natural to her in such circumstances, the patient was otherwise in a very favourable state for an attempt to turn being still made. Acting under this conviction, I accordingly passed my right hand up along the fœtus, but by no justifiable force could I reach the feet, or any part, indeed, by which turning could be effected. This was due in part to the close contraction of the uterus round the fœtus in the form of "a long sheath," exactly as described by Smellie, in part to my hand becoming numbed under the strong contractions of the uterus whenever

an attempt was made to carry it up towards the fundus uteri, and in part to the palmar aspect of the hand not being readily turned towards the anterior surface of the fœtus. For the latter reason I next tried the left hand, but, although it could be passed with much greater ease up through the inlet of the pelvis, and the position of the fœtus could be far more readily ascertained, viz., that "the left shoulder, breast, and neck" were presenting, I did not consider myself justified in using such an amount of force as would have enabled me to reach a part by which the pelvic extremity of the child might be brought down, and so abandoned the attempt.

On consulting farther with Dr. Ferguson, I was inclined to recommend him to give a full dose of opium, and to wait for a few hours, when, chloroform having meantime been procured, a new attempt might be made to turn under its influence, and, in the event of that failing, recourse might be had to evisceration of the fœtus, or even immediately to proceed to that operation rather than repeat the attempts already made to change its position. My friend, however, thought that one more attempt should be made to turn, and I advised him to try the left hand, since I had been able to use my own with so much more freedom than the right. Accordingly, he introduced the left hand, and after some time spent in cautiously but perseveringly forcing his way towards the lower extremities of the fœtus, he succeeded in hooking the forefinger into the flexure of a knee, which afterwards proved to be the right. With great difficulty, in consequence of the cramped state of his hand, he contrived to retain his hold, and while I assisted by external manipulation, he brought the knee so far down that at last he got a blunt hook passed over the ham. Being quite exhausted, or rather I should say, his left hand being quite benumbed, he passed the hook to me, when I proceeded to extract in the following manner,—Guarding with the forefinger of the left hand the end of the hook, which otherwise would have come in contact with the brim of the pelvis about two inches to the right of the symphysis pubis, I made traction with the right hand in the direction of the axis of the inlet of the pelvis, Dr. Ferguson at the same time so manipulating the abdominal tumour externally as most efficiently to aid my effort to bring down the pelvic extremity of the fœtus. In a short time this was so far effected that the right foot passed through the vulva, when a loop of tape was thrown round the ankle, the blunt hook, of course, being removed whenever the leg came down so as to permit of the escape of the foot. The left hand being now set free, I coiled the end of the tape encircling the ankle round the fingers, and, with the right hand introduced into the vagina, pushed the shoulder upwards, while I at the same time made traction on

the delivered leg, and thus in a few minutes the version was ultimately effected. The body and shoulders of the fœtus were next brought down, and after a brief delay, and with slight difficulty, the head was brought through the pelvis and delivered. The woman recovered without a bad symptom.

What is remarkable in this and the preceding case is the longitudinal position of the fœtus, and the corresponding elongation of the uterus in the form of "a long sheath." In the first case, nature clearly overcame the difficulty by compressing the head and upper part of the fœtal trunk into a mass of such dimensions as permitted it to be forced through the pelvis in accordance with the mechanism which regulates the transmission through it of the fœtus under ordinary cranial or breech presentations. This was, no doubt, greatly facilitated by the dilatation of the parts of the mother consequent on the birth of the first child. But although it shows how fertile nature is sometimes in overcoming apparently insuperable obstacles to labour, such a result is no more to be calculated upon than is spontaneous evolution, and such like, in the ordinary run of so-called transverse presentations. In the second case, the process had gone no farther than merely bending the head over into contact with the shoulder; but had the expulsive pains been at all effective, I have no doubt the upper part of the fœtal trunk and head would have been pressed together as in the first case, and that they would have come to present at the inlet of the pelvis condensed, so to speak, into one mass, even if they had never come to be so modelled or reduced in dimensions by compression as to become engaged in or to pass through it.

Of the propriety of turning in either the one or the other case, there will, I presume, be no question, even although nature in the first stepped in so unexpectedly to the relief of the patient. To turn is but to do what she herself indicates, whether by rectification of the presentation, spontaneous evolution, and so on, or by the process described in the first case, and that is, the substitution of a directly longitudinal for the transverse, or, to speak more correctly, *oblique* position which obtains in shoulder presentations. In these cases, as Foster well observed, "considering the size of the fœtus and pelvis in a natural view, it is just to hold cross presentations absolutely impracticable by the force of labour alone." Still, it is of importance to understand how nature proceeds under the difficulties attending such cases, and to recognise, in the various modes by which she sometimes surmounts them, a single underlying principle which seems to direct her in effecting the birth of the fœtus when it presents in labour, more or less transversely, at the inlet of the pelvis. Her whole energies here seem to be

directed to ultimately bring the fœtus into a longitudinal position, and the obstetrician but imitates this when by art he brings either the cranial or the pelvic extremity of the fœtus to take the place of the presenting part in a cross presentation.—*Edinburgh Medical Journal, July* 1864, *p.* 26.

92.—CASE OF RUPTURE OF THE UTERUS IN WHICH GASTROTOMY WAS SUCCESSFULLY PERFORMED.

By Dr. R. W. Crighton, Chapel-en-le-Frith.

Mrs. M., aged twenty-eight, had been three times delivered by the forceps previously to her present confinement. On all of these occasions the children had survived birth only a short time, on account of the strong compression that was necessarily applied to the head to effect delivery.

Having attended her during her last confinement, and ascertained from the great projection of the promontory of the sacrum, that it was impossible to deliver her of a living child at the full term of utero-gestation, I advised her in future to have premature labour brought on between the seventh and eighth months.

Her ordinary medical attendant, Mr. Davenport of Hayfield, finding, during the early part of last winter, that she was again pregnant, had strongly urged on her the necessity of this proceeding; but, from some cause or another, his intentions were not carried out. On the 28th of January last, about 2 o'clock a.m., I received a note from Mr. Davenport, requesting me to come as quickly as possible to Mrs. M., as he wished me to apply the long forceps. I arrived about 4 a.m., and found that rupture of the uterus had occurred about two hours previously. The patient was rather flushed, and had an expression of great pain and anxiety; pulse 120, of fair strength. As the least pressure caused great suffering, I could not ascertain the exact position of the child, but the unequal, nodulated surface of the abdomen, the complete recession of the presenting part, the free discharge of blood from the vagina, and the total cessation of labour pains which had previously been very severe and constant, left no doubt as to the occurrence of rupture of the uterus, and the escape of the child into the cavity of the abdomen.

The patient stated that during the last severe pain she had, she felt something give way with a distinct snap.

Mr. Davenport informed me that she had been in strong labour since 10 p.m. on the previous day; and that, before my arrival, he had made two unsuccessful attempts to deliver, first by applying the forceps, and subsequently by turning. After

the last measure had failed, he gave a large opiate, as the pains were very severe, and it was during one of these that the uterus gave way.

I explained to the patient and her relatives that the only prospect of saving her life was by extracting the child through an incision in the abdominal wall; but, notwithstanding my urging them as strongly as I could to have it performed at once, I failed in obtaining their consent. I left the patient most reluctantly, and ordered her half a grain of muriate of morphia every two hours. About 2 p.m. I received a note from Mr. Davenport stating that the patient and her friends were anxious to have the operation performed. I arrived about 4 p.m., and found her in great agony, but with the pulse of wonderfully good strength.

After administering chloroform, Mr. Davenport introduced the catheter, and drew off about a pint of bloody urine. I now carefully examined the abdomen, and found the child lying with its head downwards, resting on the firmly contracted uterus. Before operating, I pointed out to Mr. Davenport the emphysematous condition of the cellular tissue over the hypogastrium, distinct crepitation being both felt by the hand, and heard through the stethoscope. I made an incision in the middle line from below the umbilicus to within an inch of the pubes through the skin and cellular tissue; the peritoneum was opened at the upper part, and the incision downwards completed with the knife resting on the forefinger of the left hand. About a pint and a half of dark-coloured bloody fluid escaped, and the child was at once seen lying in the position above mentioned. It was removed without any difficulty, and also the placenta, which was loose under it.

The uterus was seen to be well contracted, the line of rupture being almost directly transverse about the junction of the body with the cervix, and covered by a layer of coagulated blood.

Several large clots were removed, and some bloody fluid sponged out, but much disturbance of the viscera was carefully avoided. There were no signs of inflammation of the peritoneum except at one point in the left iliac fossa.

The edges of the wound were accurately brought together by twisted sutures on long acupressure needles passed through the peritoneum. Warm-water dressing on pledgets of lint were applied, and a bandage was passed round the abdomen.

The patient remained under the influence of chloroform for half an hour after the extraction of the child, and on awaking, expressed herself as feeling much relieved.

Pulse 112; no sickness; skin acting freely. To have one-sixth of a grain of morphia every second hour, and two minims of hydrocyanic acid with a little alkali.

No nutriment was allowed except occasionally a tablespoonful of cold toast-water, or arrowroot gruel. I saw her daily for the first twelve days, along with Mr. Davenport (whose intelligent care and attention were unremitting), and shall give a condensed report of the progress of the case, as I find it in my note-book.

29th Jan.—Has slept a great part of the night, and expresses herself as feeling very comfortable. No flushing; pulse 108, of good strength; has made an effort to vomit; about half a pint of dark-coloured urine was drawn off by the catheter; abdomen not much distended; moderate tenderness on pressure. Wound looks well; edges in correct apposition, except at one point below, where bloody fluid escapes on slight pressure. Fresh pledgets of lint were applied, and the same medicines and diet continued, with the addition of a solution of chlorate of potash for drink (gr. iv. to ℥i.), and small portions of ice occasionally to relieve thirst.

30th.—Has had pain during the night in the region of the liver and right shoulder, for which eight leeches were applied by Mr. Davenport with subsequent relief; urine twice drawn off since last visit, clearer, about half a pint each time; pulse 112; tongue covered with white fur; jaundiced tint of the skin and conjunctivæ; vomited once during the night some brownish-coloured fluid; discharge from vagina less; wound looks well, seems uniting; abdomen not much distended except at the epigastrium and right hypochondrium. Continue water-dressing to wound; to have an enema of warm-water immediately, and another in three hours, if first does not act; turpentine epithems to be applied to the epigastrium and right hypochondrium. If the stomach is not irritable, ten minims of the muriated tincture of iron to be substituted for the hydrocyanic acid. Continue toast-water, &c.

31st.—Has passed a good night; slight sickness once, but only a small quantity vomited; urine thrice drawn off since last visit, lighter coloured and more copious; abdominal distension not much increased, except at epigastrium; jaundiced colour less marked; pain in right hypochondrium gone; tongue moist, cleaner; respiration nearly natural; pulse 108, of good strength; bowels have not acted, though she had an enema twice. Wound seems firmly united except at one point below, where the edges are slightly gaping. Four needles removed; no opening of line of incision; pads applied with warm-water dressing and a bandage. An enema to be given immediately, another in the evening, if first ineffectual; if still no evacuation, gr. v. hyd, c cretâ, with gr. x. bismuth. The enemata failing, the powder was given, and soon afterwards the bowels acted freely; great sickness, however, soon followed, bursting open completely the line of wound in its whole length. Slight hemor-

rhage occurred from the wound, but not from the peritoneal cavity. Mr. Davenport reintroduced several needles with twisted suture, and applied straps of adhesive plaster. The hydrocyanic acid was given more frequently.

1st Feb., 8 a.m.—Colour of skin much improved, jaundice nearly gone; has slept two hours since the sickness; tongue cleaner and moist; complains of feeling great distension of the abdomen, which, however, is reported as being less than during the night; pulse 120, firm; urine drawn off several times since last visit, reported copious; plasters partially removed, so as to examine the wound, which is seen to be without any gaping of its edges, but not so accurately in apposition as before the vomiting; has retained the beef-tea since 11 p.m. To have tincture of iodine painted over the epigastrium and right hypochondrium, turpentine to be reapplied if required. Continue prussic acid, with ice, &c.; beef-tea in small quantities to be given by the mouth, and, every four hours, a teacupful, with ten minims of the muriated tincture of iron, by the rectum.

2nd.—Has passed an uneasy night; vomiting again occurred about midnight, with pain in the region of the liver, for which four leeches were applied, with relief; has not vomited since; bowels acted well during the night; has taken about a pint and half of beef-tea since yesterday—the greater part by the rectum; prefers it now by the mouth; tongue moist, and nearly clean; countenance of natural colour; expression good; pulse 130, of fair strength. Straps of adhesive plaster removed, and fresh ones applied; wound has a tendency to open superficially, but not in its whole depth, except at one point below, from which dark-coloured fluid escapes; abdominal distension less, except at epigastrium; tenderness on pressure less; urine reported paler coloured, and more copious, drawn off thrice since yesterday. Two long needles substituted for two shorter ones, and twisted suture applied. Continue warm-water dressing; painting with tincture of iodine, and the other medicines. A pint and a half of beef-tea to be given during the twenty-four hours.

3rd.—Bowels have acted five or six times during the night; an opiate was given by Mr. D. at 6 a.m.; since then the diarrhœa has ceased. Tongue moist and clean; jaundice quite gone; urine copious and clear, drawn off thrice; abdomen much reduced in size, except at epigastrium; pressure well borne; pulse 112. Wound dressed as before; healing at upper and lower points; edges separated for about three inches between; free discharge of dark-coloured fluid from the cavity of the peritoneum, with strong fœtor. Ordered two teaspoonfuls of brandy every two or three hours, with one quart of beef-tea per day. A solution of carbolic acid to be sprinkled on the bed.

4th.—Has passed a good night; no action of the bowels,

except the frequent passage of flatus per anum; pulse, 112, soft; wound dressed as before; no tendency to unite in the middle; all the needles removed; discharge free and very offensive. Continue the application of the iodine, and the other medicines, &c.

5th.—Has had a restless night, and slept but little, although two opiates were given; has had intense pain in the epigastrium and left hypochondrium, which was relieved by hot fomentations; at the same time experienced great pain and difficulty in swallowing; pulse rose in the night to 144, and is still 140; urine drawn of as usual; no action of bowels, except the free passage of flatus. Has taken little by the mouth since yesterday, but had an enema of beef-tea, with brandy. The cardiac region was carefully examined, to ascertain whether the dysphagia might be occasioned by effusion into the pericardium, but no signs of fluid there were discovered. To have an enema of beef-tea and brandy every three or four hours. Wound dressed as before, is now discharging pus freely; a cloth wet with a solution of carbolic acid to be applied over the pubes, and changed frequently; this seemed to destroy the fœtor very thoroughly.

6th.—Has had a good night; general symptoms improved; pulse 120; wound, healing above and below, still gapes in the middle; can now take the iron every three hours, and swallows better. Continue the beef-tea and brandy, with a little milk occasionally.

7th.—Was much troubled during the night with pain in the left hypochondrium, which is more distended than yesterday; bowels acted freely this morning after an enema; passes flatus freely per anum; complains much of a sore over the sacrum, which has been dressed regularly for some days past with calamine cerate; appears more irritable and desponding than she has done before; pulse 120; wound discharging healthy-looking pus, is contracting. Continue iron, &c.

8th.—Vomited once since yesterday, after taking a dose of the muriated tincture of iron, which was, therefore, discontinued for a time; had an opiate twice during the night and slept well; expression much improved; pulse 120, of better strength; distention of epigastrium and left hypochondrium less, and pain there much less acute; pressure over abdomen generally well borne. While dressing the wound, its edges were rather widely separated about the middle, and what was considered the lower edge of the transverse colon was distinctly seen at its upper part; no tendency to protrusion of any part of intestinal canal. Straps of plaster were reapplied more firmly than before, and the edges brought into exact apposition with dry lint and a bandage round the abdomen. To have an occasional

dose of hydrocyanic acid and another enema; the iron to be tried again in doses of five minims; beef-tea, &c., as before. After the dressing she expressed herself as feeling very comfortable, and for the first time said that she had some hope of recovery.

9th.—Has had a good night; no vomiting since yesterday, though she has felt sick occasionally. Pulse 120; tongue drier, slightly brown; distension of abdomen gradually diminishing. Wound united for upwards of two inches; discharges healthy pus; still a tendency to open widely at upper part; dressed as before, and calamine cerate applied to the pubes, as there was some erythema from the discharge. Has not taken the iron since yesterday; to have instead, the prussic acid, with a little soda, in infusion of calumba; beef-tea and brandy as before, and bread and milk occasionally, of which she is very fond.

11th.—Appearance much improved since last visit; pulse 112, of good strength; slept during past night from 11 p.m. till 5 a.m.; no vomiting; bowels have acted several times; has passed water by the natural efforts; appetite better; tongue clean and moist; distention of abdomen less; wound contracting, though still open to the extent of two inches; erythema over pubes less. Plasters, &c., reapplied; has taken the iron regularly yesterday and to-day; to have at her own request, a small mutton-chop.

18th.—Has improved steadily since the date of last report; sleeps well; tongue clean and moist; bowels opened by occasional enemata; pulse about 100, of good strength; size of abdomen much reduced, no tenderness. Edges of wound well together under the plaster; when this removed but little tendency to gape, except at the upper part; is evidently healing kindly; a little healthy pus at the lower angle. Takes half a grain of quinine several times a-day; has had for some days beef-tea and mutton-chop, with a little fish occasionally. After dressing wound she felt so well as to express a desire to get up soon; can now pass water regularly without the catheter.

22nd.—Continues to improve; pulse 98; bowels opened by enemata; appetite has failed considerably for past two or three days, notwithstanding the administration of half a grain of quinine every four hours; abdomen now quite flat, no tenderness; on removing plasters, the wound found quite united; a free discharge of pus from the vagina replaces that from the wound; no fœtor. Ordered the same doses of quinine, dissolved in ten minims of the muriated tincture of iron; to have porter frequently, up to a pint a-day, and as much animal food as the stomach will digest.

From this date she continued steadily to improve till 3rd March, when she had a rigor, with pain in the left iliac fossa;

but after free action of the skin, and the reapplication of the iodine, she began to improve again in a few days.

On 24th March the pulse rose to 120, and slight jaundice appeared, with increased dulness in the right hypochondrium. Tincture of iodine was painted over the dull space, and nitro-muriatic acid given internally, and in the course of two or three days she was so much better as to be able to be lifted out of bed to the sofa for several hours at a time.

During the first week of April she was strong enough to sit up daily, and was so well on my visit to her on the 4th of that month, that I discontinued my attendance. She mentioned that the menses had appeared a day or two previously.

On 2nd June, she walked from Hayfield to my house, a distance of four and a-half miles (returning again the same evening on foot), and assured me that she had not been in better health for years.

Remarks.—The carefully compiled statistics of Dr. Trask, of New York, give great encouragement in undertaking the apparently hopeless operation of gastrotomy in cases of rupture of the uterus; yet, since the date of the publication of these (1856), I cannot find any successful case recorded as having occurred in Great Britain. I have, during the past thirteen years, seen only one case in addition to that recorded above. In that case the practitioner in attendance was not aware that rupture had occurred, and did not fully sanction my proposal to perform gastrotomy. The patient was abandoned, and died undelivered about thirty-six hours after the occurrence of rupture. She was a primipara, and apparently free from pelvic deformity. Ergot had been given freely during the progress of the labour.

In Mrs. M.'s case several points deserve, I think, especial notice; the long interval that occurred between the rupture and the extraction of the child—fourteen hours; the recovery from acute jaundice occurring in the circumstances; and the apparently good effects of the application of the tincture of iodine externally in causing absorption of the products of inflammation affecting the serous covering of the different abdominal viscera. —*Edinburgh Medical Journal, Aug.* 1864, *p.* 133.

93.—ON THE SCIENTIFIC TREATMENT OF POST-PARTUM HEMORRHAGE.

By Dr. J. Lumley Earle, Obstetric Surgeon to the Queen's Hospital, Birmingham.

In the employment of cold, we should bear in mind the following facts—that cold, applied for too lengthened a period, acts as a depressant, and loses its effect; that the colder the

water, the greater the shock, and the more powerful is its effect in inducing permanent uterine contraction. We learn from them that, in bad cases, the continued application of cold requires care lest it increase the exhaustion; that it is most important to have the water as cold as it can be obtained, as the effect depends upon the coldness, and not upon the quantity of water used. Water, fresh from the pump, is generally sufficient; if we can obtain ice easily, so much the better. Dr. Tyler Smith recommends in some instances the application of cold and warm water alternately. I should say it would be most useful in cases where cold water had been applied for some time, and was losing its efficacy.

Ergot.—When good in quality, ergot is a most valuable remedy; it arrests the flooding chiefly by exciting contraction of the uterus. One fault in the drug is, that it sometimes fails in producing its specific effect. The failure may be due to the ergot being inert, or to some peculiarity of the patient rendering her insuceptible to its action. It very rarely fails from an idiosyncrasy, but from the absence of the active principle (whatever that may be) of the ergot. There is great difficulty, first, in getting good ergot, and next in keeping it good. Prior to the purchasing of the drug, we should examine its quality. The grains of ergot are from half an inch to an inch and a half in length, of a dark purple or black exterior, and ribbed in the longitudinal direction. On its surface, longitudinal and transverse fissures are generally present. On breaking a grain across, the interior is either of a white colour tinged with purple, or of a dirty yellow hue. The difference of colour depends probably upon the age of the grain. Ergot has also a very strong peculiar odour, irritating to the nose. The best indications of good ergot are the large size of the grains, both in length and breadth, and the strong oppressive odour. Good powdered ergot is known by its not being as fine as dust, and by its possessing the odour in a strong degree. The insect which feeds upon it, and destroys it, is a species of acarus, and may be seen sometimes by the naked eye, although its form cannot be defined without the aid of a microscope. These creatures will, in a very short time, reduce coarsely-powdered ergot to a fine dust, and render it perfectly inert. The best way to prevent ergot from spoiling is to keep it in the form of grain in a glass stoppered bottle, with a piece of camphor about the size of a pigeon's egg thrust into the centre of the mass. If a cork instead of a glass stopper be used, the acari will soon riddle it through, and allow free ingress of air. Not more than an ounce or two of ergot ought to be crushed for use, as it rapidly deteriorates in the powdered state. It is given in the form of infusion. One drachm, or a good tea-spoonful, is placed in a tea cup of

boiling water, and allowed to stand ten minutes, when half the quantity may be administered, and the other half in twenty minutes or half an hour after, if the desired result should not have been produced. Before taken, the infusion should be stirred up, that the patient may swallow the ergot grounds as well as the fluid. Besides the infusion, there are other fluid preparations, and an extract called ergotine. I have used the latter, and one of the former, and the results have prejudiced me against their use. In some cases, uterine contraction followed apparently their employment; while in others no effect at all was produced. I could not depend upon them as I could upon the infusion of good ergot. One great objection to them is, that we cannot be certain that they are made from ergot of good quality. I have lately heard the extractum ergotæ liquidum B.P., very highly spoken of, and I intend to give it a trial. The dose is one tea-spoonful. A trustworthy fluid preparation of ergot would be of manifest advantage. The active principle would be preserved from the ravages of the acari, and it would be ready for immediate use—a point of considerable importance in an urgency like flooding. Although ergot is about one of the most valuable remedies we possess in the treatment of post-partum hemorrhage, there are cases in which no good will be attained by its administration, and others in which it will do harm. I shall particularise them in a subsequent communication.

The introduction of the Hand into the Uterine Cavity.—This is one of the means of arresting hemorrhage which requires care and judgment in its use. I do not agree with the opinion of many writers that it should be put into a practice only as "a last resource." I have in several cases made use of it as a first remedy, and in a few moments, by so doing, have placed patients from a state of imminent danger into that of comparative safety. The ease or difficulty with which the hand may be passed into the uterus depends very much upon the size of the hand. We know what a slight difference in the size of an infant's head, or of the pelvic cavity will make the labour easy or difficult; and just so in the introduction of the hand. If a medical men has a very large hand, and his fingers are all thumbs, he will find great difficulty in passing his hand into the uterus, and will cause his patient great suffering; but if his hand be small, it will pass easily and give very little pain. I have noticed, and it is what we would expect, that the men who deprecate the procedure are generally those who possess big hands. The effect upon the patient will also depend a great deal on the size of the hand. The smaller it is, the easier it will pass, the less pain it will cause, and the less shock and exhaustion will ensue. Let it not be thought from the above remarks that I look upon

the introduction of the hand as a light matter, to be undertaken indiscriminately without any reference to the case before us, for I do not; I never pass my hand into the uterus unless I have a good reason for it: but if, from the nature of the case, I feel satisfied that that is the correct proceeding, I do not hesitate, and go on trying a number of other remedies with the hope that the introduction of the hand may be avoided. Such hesitation, in some cases, would prove fatal. Dr. Tyler Smith says:—"I believe, in the present day, more mischief is caused from a kind of fear of the uterus, and of interfering with its natural action, than from bold and intelligent efforts to guide and control it."

The introduction of the hand may be necessary for the application of internal pressure and irritation, or for the removal of substances which keep up the flooding by distending the cavity of the uterus, and preventing its due contraction. Before it is undertaken, brandy should be given to the patient, and the nurse told to continue its administration from the time that the hand commences to pass through the vulva until it is removed. In flooding cases, this precaution should never be omitted. It averts the faintness and shock which otherwise might ensue, and it also assists in drawing away the patient's attention from what is being done. Since I have taken the precaution of having brandy given *during* the operation, I have not observed the slightest depression or fainting result.

The hand may be introduced as follows:—If the patient is lying on her left side, the left arm and hand will be more readily passed than the right. They should be well greased, and the fingers and thumbs so packed as to be made to occupy as small a space as possible. The first and fourth fingers should be placed in front of the second and third, and the tip of the thumb at the base of the cleft between the third and fourth finger. The usual plan of placing the tips of the fingers and thumb together is not so good, as it takes up more room. The hand should be then passed gently and slowly, feeling the way as one goes on through the vulva and vagina into the uterus. The hand, as it passes through the vulva, generally produces more or less pain on account of the soft parts being pinched against the descending rami of the pubis. The mere presence of the hand in the vagina or uterus does not give rise to much pain. It frightens more than it hurts the patient. The hand should never be removed until it has effected the purpose for which it was passed; for instance, in adherent placenta, to pass the hand into the uterus, and then to take it away again without bringing away the placenta, on account of the patient's or friend's entreaties, would show a great want of presence of mind, and it would be acting cruelly instead of kindly to the patient, because the intro-

duction of the hand would have to be repeated. I shall postpone the description of what has to be done with the hand while in the cavity of the uterus until I come to consider the causes for the removal of which it has to be passed.

In a very bad case, where the patient is exceedingly low, it may be a question as to whether the hand should be passed into the uterus before the patient has somewhat rallied. The cases are quite exceptional in which it would be well to wait. If a great loss of blood is going on, we cannot expect that the patient's condition will improve, but just the reverse; and if the hand has to be passed at all, the sooner it is done the better. During the operation, in these cases of great depression, the brandy must be poured down the patient's throat undiluted with water. The introduction of the hand, and especially whatever it has to do in the uterus, should be done gently and deliberately.—*Medical Circular, June* 8, 1864, *p.* 375.

94.—ON UTERINE HEMORRHAGE.

By I. Baker Brown, Esq., Senior Surgeon to the London Surgical Home.

[This paper is an abstract of a clinical lecture by Mr. Brown, and embraces the subjects of hemorrhage arising from polypus of the womb and from fibrous tumours.]

A polypus may exist at the mouth of the uterus, in the cervix, or within the body. In construction it may be either vascular or fibrous. It may be so diminutive in size that the points of a pair of forceps will not hold it, or if sought by the finger, it is scarcely to be discovered by touch. It may be so small, indeed, that it would seem almost impossible that a structural change so slight in appearance should give rise to formidable bleeding. But it is a fact that these diminutive polypi serve to keep the lining membrane of the uterus in a constant state of irritation, liable at any moment to give rise to hemorrhage. These very small bodies can often be scooped away, when they cannot be laid hold of and ligatured. An ordinary scraper something like that which Prof. Simpson uses, or a long nail fastened to the finger, giving it a couple of inches or so more length, according to Sir Charles Locock's ingenious suggestion, may be had recourse to. The polypus is readily detached, and the moment it is separated hemorrhage ceases. The polypus may be of a larger kind; and I may here remark that the true distinction between a polypus and a fibrous tumour consists in this, that a polypus has a neck to it and a fibrous tumour has not. The true polypus of the womb is a fibroid growth, precisely of the same structure pathologi-

cally as the fibrous tumour. A polypus is much more easily removed than a fibrous tumour on account of its pedicle. A polypus is generally removed by the scissors or knife, by ligature, or by pulling down the growth and twisting it off. Some advocate twisting, some tying, and some cutting. Sir Charles Locock tells me that throughout a long practice he has never seen any hemorrhage arise from cutting with scissors; still it is a fact that cases are on record where dangerous hemorrhage has followed removal of a polypus by the scissors. The moment a polypus is removed the uterus contracts; and if hemorrhage take place from the cut pedicle, serious consequences may result from the effused blood being retained in the womb. Again, if the polypus be ligatured, and allowed either to remain in the uterus or to hang out of its mouth, a series of the gravest consequences are apt to occur. The polypus quickly dies and breaks up, giving rise to a peculiarly offensive discharge, which sickens both patient and attendants, and renders the room where the patient lies unbearable. In cases under my care in St. Mary's Hospital where I removed the polypus by ligature, twice I was obliged, from the poisoned atmosphere of the ward, to cease operations there. In one instance two of the house-surgeons become seriously ill from the stench. I therefore adopted, in place of the ligature alone, the following plan, which may be recommended to the timid surgeon, who fears to use the scissors or knife simply. I tie the polypus, either with the fingers or a Gooch's canula, as high up as possible. Then I cut off the growth anterior to the ligature. By this plan the stump alone is left to slough away. The use of the écraseur is advocated by some surgeons in these cases. Much as I value the écraseur, I do not think it suited to polypoid growths of the womb. The operation with this instrument is long and tedious, and offers no advantages which outweigh the brevity and simplicity of removal with the scissors or knife, or the combination of ligature and knife or scissors, as I have suggested. I must omit details of cases of polypus lest these remarks should extend beyond reasonable limits.

I would now direct your attention to fibrous tumour—a most frequent source of uterine hemorrhage.

I shall confine my observations to the treatment of these morbid growths by breaking up their structure. This operation is performed by first dividing the mouth and neck of the uterus up to the inner mouth by the hysterotome; and then, when the cut surfaces have healed, gouging the tumour so as to break the capsule. After I had performed this operation in several cases, I noticed that hemorrhage invariably ceased after the incision of the mouth and neck of the uterus. It occurred to me that there must be something more in this sequence than

immediately met the eye. I instituted a series of experiments upon the influence of incision of the os and cervix uteri in checking uterine hemorrhage, and discovered that by means of this operation the bleeding occasioned by fibrous growths in the womb could be readily and effectively checked. About the same time M. Nélaton, of Paris, and Dr. M'Clintock, of Dublin, each independently of the other and myself, make the same discovery.

I adopt the following practice in incising the mouth and neck of the uterus:—I press the perineum down with the bent speculum, which I term Boseman's (although Dr. Marion Sims objects to the instrument being so designated). Then I seize the superior lip of the os uteri, and hold it firm, an assistant steadying the speculum. In this way I obtain a perfect view of the os and cervix. Having determined to what extent I will incise, I introduce Simpson's hysterotome within the os and cervix, and cut freely first on one side then on the other. If the uterus be not steadied by the forceps, it will recede before the hysterotome, and it will be difficult to make the incisions of the requisite depth and with sufficient freedom. Having made incisions from the outer to the inner os, including the whole length of the cervix, I next plug the cervix and the vagina most thoroughly and firmly with lint soaked in sweet oil, fixing the whole with cotton-wool, so that hemorrhage is prevented and air entirely excluded from the cut surfaces and the uterus. Upon the care with which the plugging is effected will depend the subsequent favourable progress of the case. In the last case of uterine hemorrhage treated in the Surgical Home by incision, the vagina was very large, and, as it were pouched. I did not plug it sufficiently with lint or cotton-wool, and, for the first time in this institution, severe hemorrhage occurred, and subsequently pelvic abscess. This is a lesson not to be lightly forgotten. The impunity with which I incise the os and cervix uteri so frequently as I do, arises from the fact that I am extremely careful to plug well afterwards.

The following cases will illustrate the happy results of incising the mouth and neck of the uterus:—

A., suffering from fibrous tumour of the uterus, giving rise to severe hemorrhage. The patient was forty-one years of age, married, and had four children. She was admitted into the Home on the 24th of July last. About a year and a half before admission she fell violently, and suffered from retention of urine for some time. Ever since the accident she has been subject to constant and severe attacks of flooding. I first used sponge tents, but without giving relief. Frequently a sponge tent will check the hemorrhage. On the 10th of September I freely incised the os and cervix uteri in the manner which I have des-

cribed. Three months afterwards the report states that there had been no return of flooding.

B., aged thirty years, married, has had six children and miscarried five times. For several years she has suffered from excessive menstruation, and she has been laid up some time in consequence of her extreme weakness. She acknowledges constant habits of delection, and is subject to frequent attacks of hysteria. The habits of delection complicated the case, for I knew well that if I did not remove the clitoris, to cure these habits, at the same time that I incised the os and cervix uteri, temporary relief would alone be given. I removed therefore the clitoris, and incised the os and cervix. The patient steadily improved from the time of the operation. The hemorrhage ceased, she regained her flesh and strength, and within twelve months after leaving the Home she gave birth to a child.

C., aged forty-seven years: twelve years a widow. Has two children, the youngest aged seventeen years. Suffers from a large fibrous tumour within the uterus, and a small bean-like polypus at the os, giving rise to flooding at the catamenial periods. I removed the small polypus, and divided the os and cervix freely on each side. A month afterwards the menses appeared, normal in quantity, and lasting three days. Before the operation they lasted seven or eight days, and were excessive. She left the Home wonderfully improved in health, and without any return of the hemorrhage.

D., aged thirty-five years; married thirteen months; no children. She noticed an increased size of the body during the last nine months. Every fortnight subject to what she describes as "fearful flooding." When she was admitted into the Home she was highly anæmic. On examination, the cavity of the uterus was found to be occupied with a large fibrous tumour. I incised the os and cervix freely. The tumour gradually diminished in size; menstruation became regular and normal in quantity; and the patient subsequently gained a condition of health which she had not experienced for fifteen years, and became equal to all her household duties.

H. R., aged thirty-eight; unmarried. The abdomen had been enlarging gradually during six months; and flooding had been almost constant. The patient was exceedingly weak and highly anæmic. On examination, a large intra-uterine fibrous tumour, the size of the head of a nine months' child, was discovered. In this case the os and cervix were incised, and, after the operation, the hemorrhage stopped. A month afterwards I broke up the tumour. The patient recovered completely.

My note-book contains reports of at least fifty such cases. I shall add, however, but one case more to those which I have already briefly mentioned—a case of recurrent fibroid tumour.

This form of disease is very rare, and its successful treatment is still rarer.

The patient, a needlewoman, was thirty-three years of age, and single. From the age of thirteen she had menstruated, generally profusely, and on each occasion from seven to eight days. For two years she had been rarely free from flooding, had suffered much pain, and become so weak that she was almost constantly laid up. For nine months she had not passed a day without some loss of blood. She was under the care of Dr. Holt Dunn, who recommended her to place herself under my care for the sake of being operated on; but she first consulted Dr. Robert Lee, who expressed an opinion highly adverse to operative interference. In the end, however, she was admitted as a patient into the Surgical Home on January 15th, 1861. On examination, I found a good-sized intra-uterine fibrous tumour. The patient was in a most miserable condition, almost bloodless, constantly flooding, and with a face that looked as if she had malignant disease. On the 30th January I incised the os and cervix, and she had no hemorrhage for some time after the operation. When examined on the 18th February, the tumour was found to be decidedly diminished in size, and a small portion was protruding at the os. On the 20th February, under chloroform, I removed with a pair of curved scissors a piece of the tumour as big as a bantam's egg. On the 25th the patient went to her own home, very much improved in general health. The flooding had at this time entirely ceased, but there was a great deal of offensive discharge. Shortly afterwards there was a slight return of the hemorrhage, and on March 4th I removed with an écraseur another large piece of the tumour, the size of a small orange, injected the uterus with tincture of perchloride of iron, and gave tincture of ergot. The injection was repeated every two or three days. On the 27th March I removed another large portion of the tumour by means of a knife and curved scissors. After the removal of the pieces, the uterus would contract and the flooding stop. Then in a few weeks the tumour grew again, opening the os and cervix, and protruding into the vagina; then the flooding would come on once more. On this last occasion the tumour had opened the os completely, and I was able for the first time to grasp and pull it down. I then found that the mass grew exactly in the centre of the fundus. I had never been able fully to "get at it" before. I excised as completely as possible, and I am not sure that I did not remove some of the fibres of the uterus itself. I then applied the tincture of perchloride of iron, and plugged the whole of the uterus and the vagina. After the operation the patient was treated medically with bichloride of mercury and bark. The flooding did not return, and she gradually,

though slowly, recovered strength. At the present time, one year and nine months after the last operation, she is quite well; and Dr. Dunn, who sees her constantly, says that she is stout and strong, and able to return to her occupation as a needlewoman.

It is rare to find a case of recurrent fibroid tumour end so satisfactorily as in this case, and it is important as showing what may be done under the greatest difficulties by perseverance. Drs. Savage and Routh have insisted on the value of tincture of perchloride of iron applied locally in the treatment of fibroid tumours, and I think that this case corroborates their opinion.

I would now direct your attention to flooding arising from vascular growths. In these cases the os uteri is found to be patulous, the posterior lip elongated and hypertrophied, and the flooding constant. If the uterus is examined with the speculum, a seemingly ulcerated surface may be seen. But in these cases it does not do to depend upon the eye alone in seeking to determine the nature of the morbid change. The finger as a rule affords more accurate information; for the sensation given to the touch by a vascular growth is so peculiar that once known it cannot well be forgotten. The altered part feels spongy, somewhat rough, and it has a certain degree of elasticity. The apparent structural change is so slight that some practitioners hesitate to accept it as a source of serious hemorrhage. The results of treatment, however, remove all reasonable doubt on this head.

H. B., aged twenty-three, married, had had five children, and had miscarried thrice. She was admitted into the Surgical Home on the 6th May, 1863. Her last confinement took place two years previously, and ever since she had been subject to attacks of flooding, coming on at the catamenial period, lasting many days, and producing great weakness. On examination, there was found general hypertrophy of the lips of the uterus, and a vascular growth on the anterior lip. The case was treated in the following manner:—The os and cervix up to, but not through, the inner os were divided; then the anterior lip was seized with a pair of strong forceps, and, with curved scissors, the entire vascular growth was cut out. The os and vagina were next plugged with lint and sweet oil. The patient recovered perfectly. The catamenia became normal; and there was no return of flooding after the operation. In cases of this character it is very necessary, in order to secure a successful result, that the morbid growth should be entirely extirpated.

The ovarian irritation which gives rise to flooding is usually brought about by habits of delection.

M. A., aged twenty-eight, was sent to the Surgical Home in

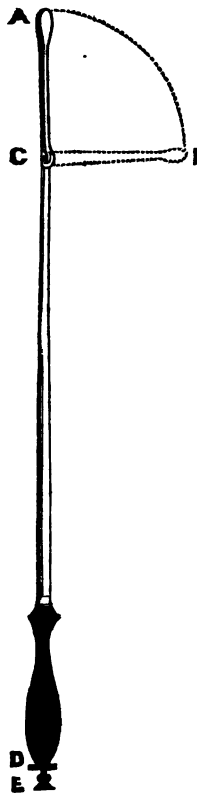
June of the present year. She had suffered from flooding for three years, and during that period she had rarely passed a day without more or less loss of blood. She had been a patient at different times in several metropolitan hospitals, but she had received no permanent benefit from the treatment which had been adopted. She was supposed to be suffering from an undetected fibroid growth. When she came under my care she was anæmic in the highest degree. From her aspect I was convinced at the first interview that she was addicted to habits of inordinate delection, and she freely confessed, on being questioned, that such was the case, and said that it was impossible to give up the habit, as she suffered from so much irritation in the vulva. On an ocular examination she indicated the clitoris as the centre of irritation. No uterine disease could be detected, but the left ovary was large and indurated. I concluded that unless the habit of delection were put an end to, no relief would be given to the ovarian irritation and the flooding. I therefore determined to excise the clitoris, and at the same time to incise the os and cervix uteri. These operations were performed, and from that time the flooding never recurred. A week after the operations the patient menstruated, the courses extending over three days only. A month from this time the patient again menstruated normally, no blood having been lost in the interval. She now began rapidly to recover colour, flesh, and strength, and she left the hospital perfectly well.

I have not yet mentioned the after-treatment of the class of cases which have been under consideration. Where there is hemorrhage, without any anæmia, it is best to keep the patient on a milk diet, avoiding stimulants. But when the patient is anæmic, a meat diet will be required, with wine. The wine at first should be given in small quantities—half an ounce three or four times a day, the amount being gradually increased as the patient improves. Absolute rest for many, usually twenty-one days is essential. I do not allow the patients to leave their bed, or to sit up for any purpose; and, for the first few days, I have even the urine drawn off. I do not, also, allow the bowels to act, so that there may be no disturbance of the hemorrhoidal vessels, and no excitement of the sacral nerves—nothing, in short, to agitate the parts which have been operated upon. Another important point is attention to the skin. In every case operated upon in this institution, the patient is sponged from head to foot every day. Upon the normal action of the skin the rapidity and certainty of the patient's recovery largely depend. By attention to these points in the after-treatment the recovery of the patient is greatly promoted—*Lancet, July 2 and 9, 1864, pp. 5, 34.*

95.—ON AN UTERINE SOUND WITH MOVEABLE HEAD.

By Dr. J. Lumley Earle, Obstetric Surgeon to the Queen's Hospital, Birmingham.

By referring to the woodcut, the working of the instrument will be readily understood. The portion of the sound, from A to C, is 2½ inches in length, the ordinary length of the normal uterus. It is set in motion by an internal rod, one end of which is connected with the joint at C, the other being shown at E. The head of the sound may be made to move to any point along the dotted lines from A to B by turning the screw at D from right to left.



The instrument was devised chiefly to obviate the constant bending which is necessary in the immoveable sound to make it tally with the varying obliquity of the uterus in different individuals. It possesses the advantage of being able to be set in motion while in the vagina or uterus. It may be passed perfectly straight to the os uteri, and then, gradually as it passes along the canal of the uterus, may be made to take the angle suitable to the case before us.

By using the moveable sound at certain intervals for some time it may prove beneficial in curing some cases of anteversion or retroversion. Take an instance of anteverted uterus, in which the moveable part of the sound lies at right angles, C to B, to the shaft of the instrument. By reversing the action of the screw at D, turning it from left to right, the uterus may be made to assume the perpendicular position; and, if necessary, even may be retroverted by turning the handle of the instrument round, and setting the bulbous portion again in motion.

There are other cases in which a moveable uterine sound might prove useful. It would probably remove a great deal of the difficulty generally experienced in bringing on labour in certain cases of retroversion of the pregnant uterus, as it can be passed to the os in a straight position,

and made to take a suitable angle gradually as it passes through the os and cervix.

The instrument may be procured from Mr. T. P. Salt, Surgical instrument maker, 21, Bull-street, Birmingham.—*Medical Times and Gazette, June* 18, 1864, *p.* 685.

96.—ACTIVE CONSTITUENTS OF ERGOT OF RYE.

Mr. W. T. WENZELL, of La Crosse, Wisconsin, has investigated the proximate chemistry of ergot, and he states (American Journal of Pharmacy, May 1864) that he has succeeded in isolating two vegetable nitrogenized alkaloids, the first of which he has provisionally named "ecbolina," and the second "ergotina." Mr. W. gives the following account of the physiological action of the alkaloids.

"The experiments were made by comparison with the powdered drug. Unlike most authors, who believe that ergot has no obvious action on the male, I have come to the conclusion that it has as powerful an influence upon the spinal column of the male as it has upon the female. I find a half grain of *ecbolina* to possess the same therapeutic action as thirty grains of ergot. From either the alkaloid or the powdered ergot in the doses mentioned, the following effects have been experienced upon myself:

"The functions of the brain were excited to a species of intoxication, in which participated the muscular system, causing involuntary contractions of the muscles, soon followed by nausea, a loss of appetite, a sense of weight and shooting pains through the head, stiffness and soreness of the muscles of the neck and extremities, a creeping sensation along the course of the spine; finally, a state of general relaxation and debility, soreness of the muscles, particularly those of the extremities, and a gnawing sensation in the stomach, with hunger. From the beginning to the end of the ergotic influence, which lasted about three hours, the pulse was not materially affected until the stage of debility supervened, when the pulse fell about four beats per minute. On doubling the dose, the only difference observed was, that the state of excitement was of shorter duration, but was followed by a greater amount of debility, greater weakness, with trembling of the extremities and pain through the chest.

"Half a grain of chloride of ecbolina was given to a strong, muscular man, weighing 180 pounds, and in perfect health. He complained of shooting pains in the head, nausea, frequent calls at micturition, pain and tightness across the chest, followed by

a reduction of the pulse, depression of the mind, a dull pain with a sense of pressure above the orbits, and general debility.

"Experiments instituted with ergotina in a physiological point of view were less complete, owing to the loss previously mentioned. From the effect produced upon myself, I believe it to be less active than its congener, and although capable of causing some cerebral excitement, and a reduction of the pulse, I did not observe the same specific action upon the spinal column and muscular system."

Mr. W. gave a physician a solution of the chlorate of ecbolina to test its medicinal qualities in uterine hemorrhage and in parturition, and he reports having used it in several cases of uterine hemorrhage, with satisfactory results, but says that, "from the symptoms produced in the doses I had directed him to give, he was compelled to lay it aside, from the energetic and poisonous action it evinced, causing great nausea with distressing vomiting and intense headache. He thinks the ecbolina to be a powerful agent.—*American Journal of Medical Science, July* 1864, *p.* 278.

97.—ON BORAX AS A SUBSTITUTE FOR ERGOT.

By E. Howard Moore, Esq., Cambridge Heath.

I have lately given borax in place of ergot during labour, when circumstances called for the exhibition of the latter drug, with so satisfactory a result, that I am desirous (with your permission) to make it known to the profession.

The effect produced by an ordinary dose (℈ij., dissolved in a little water), *when the uterus is disposed to act*, is constant and unremitting contractions of that organ, which speedily puts an end to the labour, such as is followed by ergot *when* it acts; but I consider it has the advantage over ergot of seldom causing sickness (unless the dose be very large). I am also inclined to believe that its action is specific, the pulse being affected secondarily from the uterine excitement; but I would not advise it to be persevered in under that idea, if two doses (twenty minutes intervening between the first and second) do not produce the desired effect. I hope other practitioners will be induced to *try* borax, and furnish the profession with the result, whether favourable or otherwise, as I consider further proof of its uterine properties are required before it will supersede the use of ergot. Its uterine action only appears manifest at the time of labour, therefore it cannot be said to produce contractions *ab initio.—Medical Circular, June* 29, 1864, *p.* 429.

98.—ON THE DIET OF CHILD-BED.

By Dr. Graily Hewitt, Physician to the British Lying-in Hospital.

[The subject of the diet of child-bed is one which has been of late forcing itself on professional attention.]

The text-books most generally in use are those of Dr. Churchill, Dr. Ramsbotham, and Dr. Tyler Smith. The principles laid down in these works in reference to the diet of the patient during child-bed are to be gathered from the following quotations.

Dr. Churchill says, in reference to the diet: "Excess, by inducing feverishness, may retard the convalescence. The patient should be confined to slops—gruel, panada, arrowroot, milk, whey, weak tea, &c.,—with bread or toast and butter or biscuit, for five or six days, when the excitement produced by the secretion of milk has subsided; and if there be no counter-indication, she may take some broth, and on the seventh or eighth day some chicken or a mutton chop, with some wine-and-water." (4th edit., p. 234.)

Dr. Ramsbotham directs that nothing but tea, toast, or farinaceous food be given until the bowels are freely opened. A little beef-tea or broth is then allowed. To this, in a day or two, a light pudding is to be added; "and in a week she may be allowed a small quantity of solid meat." Stimulants of any kind are forbidden, under ordinary circumstances, until near the end of a fortnight. (p. 151.)

Dr. Tyler Smith says that no solid food should be given until after establishment of full secretion of milk and action of the bowels; but he at the same time adds that "cases sometimes occur in which the exhaustion is so great that animal food and stimulus are required from the first." (p. 319.)

From these quotations it is evident that the principle of practice recommended by these standard authorities is one of low diet from the first: Drs. Churchill and Ramsbotham ordering a low diet for as much as a week after labour has taken place; and Dr. Tyler Smith concurring in the principle of low diet as a rule, but admitting the exceptional necessity for deviation from this rule. The practice is, as I hope to show, wrong and unnatural. Nevertheless the rules which I have mentioned to you are followed by a majority of practitioners. We are so grown up in the practice that it has hardly seemed to be extraordinary that a woman should be allowed little more than gruel, *ad nauseam*, for a week or more after her labour is over.

Why is it that it has been considered necessary to place a woman recently delivered on a low diet? It was thought that the adoption of a low diet was likely to be the means of pre-

venting puerperal accidents and diseases. This is the principle on which these rules are based. Is this principle true? Are known facts in consonance therewith? I believe the principle to be entirely wrong; I am quite sure that facts do not bear it out—nay, that they distinctly contradict it. Let us consider for a moment what is the condition of a woman directly after delivery. The nervous system is much agitated; she is often much exhausted; her muscular system has been exercised powerfully and to an unwonted extent; she has lost a certain quantity, in many cases a considerable quantity, of blood. The rational treatment of a patient presenting such symptoms would be a restorative one: it would involve (first) rest, and if possible sleep; and (secondly) the administration of such nourishment as would replace what has been lost; and it is obvious that the patient will require food in proportion to the amount of loss sustained. Further, it must not be forgotten that in many cases the patient, although not giving any obvious external sign of weakness or prostration, is nevertheless in a state very closely approaching to one of exhaustion; and this is particularly observed where the constitution has been undermined by rapidly succeeding pregnancies in women who are insufficiently fed and badly cared for. The rational treatment then, I would repeat, is to administer food such as will restore what has been lost; and by "food" I understand whatever tends to support and maintain vital power—animal food especially, combined or not, according to circumstances, with liquid containing alcohol. So far as the condition of the patient immediately after labour is concerned, there would seem to be no reason for depriving her of such food and restoratives as would be administered under circumstances apart from the parturient state altogether, and with the view of alleviating similar symptoms.

But, it is argued, the patient must be kept on a low diet in order to prevent mischief arising, and to ward off certain evils to which she is liable. A low diet will prevent it is said, the occurrence of what is called "inflammation." Let us consider these various "inflammatory" conditions liable to arise after parturition, with the view of ascertaining how far they are likely to be prevented, or the reverse, by the adoption of a low diet.

1. *Milk fever.*—This is usually described as an affection which comes on about the third day, when the breasts begin to swell, the pulse rises, and there is a feverish heat of the skin, these symptoms subsiding in the course of twenty-four hours, more or less. From what we read in books, we should conclude that this is a common disorder; but the fact is that it is a very rare disease indeed, so much so that an eminent authority, M. Pajot, of Paris, almost doubts the existence of the affection. As bear-

ing on this question, I may mention that out of the last fifty cases which have been under my care in the British Lying-in Hospital there were only two in which the symptoms present had any resemblance to those of "milk fever." This disorder is, you will perceive, ephemeral; no bad effects result from it. And now an important question arises—Would this disease be observed if the patient were well fed? My own experience has led me to the conclusion that milk fever is less likely to occur when the patient is well fed than under the opposite conditions. In the two cases which I have just mentioned as observed recently by myself there was present a markedly defective state of the nutritive functions, and both patients had been, prior to their admission into the hospital, very indifferently fed. I strongly suspect that "milk fever" is in some cases connected with the practice, prevalent with some nurses, of not putting the child to the breast until one or two days after labour. This practice is one which I believe to be highly improper, and one calculated to lead to the production of sore nipples and milk abscess. On this point, however, I do not wish to enlarge at this moment. The point to which I wish particularly to call your attention is, that it is very questionable if a low diet tends in any degree to prevent the occurrence of milk fever.

2. We come next to the more serious puerperal diseases—"*puerperal peritonitis*," *puerperal fever*, *phegmasia dolens*, &c. With respect to the pathology of these diseases, there is very much more to be said than can be compressed into the short space now at my disposal, and I can only state those conclusions respecting them which may, as I believe, be made a satisfactory basis for the application of therapeutics. It was formerly considered, and the idea is still prevalent to a wide extent, that the essence of these serious puerperal affections was "inflammation." Thus when, two or three days after labour, the patient began to complain of shivering, of pain over the uterine region, when the pulse became frequent, these symptoms were considered to indicate the presence of inflammation of the uterus or of the peritoneum. It is now known, however, although not sufficiently generally admitted, in the first place, that these symptoms frequently indicate the passage of poisonous material into the blood, really a form of pyæmia; and, in the second place, that while mischief of an "inflammatory" kind may be set up in consequence of the introduction of such poison, or in consequence of violence sustained by the uterus during parturition, the best method of combating the inflammation is, not by employing remedies formerly considered anti-inflammatory, such as bleeding, antimony, mercury, administration of low diet, and the like, but by supporting the strength of the patient, and by

exhibition of remedies of a soothing and sustaining nature. So, again, in cases of puerperal fever: the condition actually present is a poisoning of the blood, attended with symptoms of extreme depression, in the prevention and treatment of which low diet and lowering agents of whatever kind are, in my opinion, noxious and injurious in the last degree. In phlegmasia dolens, another accident of the puerperal state, the essence of the disease being erroneously considered to be "inflammation," it was supposed that a low diet would tend to prevent such inflammation. The word "inflammation" has much to answer for in respect to the injurious influences it has exercised on the treatment of puerperal diseases. It is responsible for the low-diet system which has so largely prevailed in the lying-in room —a system which, by weakening the patient, has rendered her liable to become a prey to the poisonous influences by which she may be surrounded, and has induced a mode of treating puerperal diseases calculated to neutralize and negative the efforts nature will always make to overpower and throw out the subtle agent creating mischief within. In the prevention of puerperal fever, the first thing to do is to prevent contact with septic agencies from without; the second, to secure the patient from the operation of septic agencies within. The latter indication is best fulfilled by securing early, good, and permanent contraction of the uterus. A relaxed uterus readily becomes the medium of absorption from the inner surface of the organ through the open extremities of its torn vessels. Perfect contraction of the uterus is, I believe, an almost complete safeguard against introduction of septic matter into the system, and contraction of this kind is best maintained by keeping up the vital powers of the patient, which can only be done by taking care that she is well nourished. Defective contraction of the uterus I have invariably observed to be present at the outset of an attack of puerperal fever.

Modern pathological research has removed phlegmasia dolens from amongst the affections requiring an antiphlogistic treatment and prophylaxis. The substance which fills the hardened vein was formerly believed to be the product of inflammation, but we now know that it results simply from coagulation of the blood. The blood coagulates in the veins; the clot may soften, and become converted into a soft, puriform material, which, though looking like pus, is only broken-down fibrin. Phlegmasia dolens may occur in men as well as in women who have not had children, and it is not unfrequently observed in cases of phthisis. Phthisis is, as we all know, not an inflammatory disease, its distinguishing element being defective nutritive power. It has been shown by Professor Humphry, of Cambridge, that this tendency to coagulation in the veins, apart

from puerperal influences, is associated with a depressed condition of the vital powers, and he has offered abundant clinical evidence of the correctness of this statement. Now, in the case of a woman recently delivered, a depressed condition of the vital powers is very far from uncommon. If the uterus does not contract, an unusual quantity of blood remains in its vessels, and there coagulates. The coagulum spreads upwards by extension, and when it reaches the common iliac vein the circulation in the external iliac vein may become stopped at any moment. Undue loss of blood during or after parturition necessarily depresses the system, and facilitates coagulation in the uterine veins, a tendency still further increased by the circumstance that the uterus in such cases does not contract well. That phlegmasia dolens is more often observed after parturition, in cases where much blood has been lost, is a matter of observation; that it has been noticed to have occurred very frequently in cases where the vital powers have been inadequately sustained by nutritive material will become also evident to those who will take the trouble to enquire into the matter. The evidence to be collected, pathological as well as clinical, is all in favour of the proposition that by a generous diet will the tendency to phlegmasia dolens—supposing it to exist—be likely to be counteracted.

If, for the sake of argument, we admit that these puerperal accidents are inflammatory, the utility of a low diet cannot be maintained in face of the great alteration which has come over the professional mind in reference to the treatment of inflammation. The practice of bleeding has very largely gone out; mercury and antimony are far less relied on than formerly. There is certainly much doubt as to their efficacy in these cases. The absolute dietary formerly insisted on has equally fallen into disfavour.

It may be urged that I am arguing on theoretical grounds; but I can state, as the result of very careful personal observation, that the conclusions I have enumerated as to the bad effects of the low-diet system in the prevention and treatment of the puerperal diseases alluded to are amply borne out by the facts in my possession. I have also—and this is perhaps more to the point—abundant evidence of the most practical kind of the value of a generous sustaining and supporting diet and regimen, both in cutting short puerperal mischief of the worst kind, and in preventing its occurrence under circumstances most threatening to the patient. What I have seen of puerperal fever and allied disorders has, indeed, induced me to regard with the utmost horror all remedies of a depressing, lowering character. In the treatment of these affections, large quantities of food and brandy, or an equivalent, I have em-

ployed most successfully. It is rational to suppose, and it is consistent with my experience, that this gives a clue to the prophylaxis of these diseases. I say nothing of cleanliness, ventilation, separation from contagious influences, &c.; the necessity for these it must be superfluous for me to expatiate upon.—*Lancet, September* 3, 1864, *p.* 259.

99.—ON IODIDE OF POTASSIUM AS AN ANTILACTESCENT.

By Dr. FREDERIC H. MORRIS, Cheltenham.

It was in consequence of the unsatisfactory results obtained from the external application of belladonna, in arresting the secretion of milk, that I was induced to try the internal administration of iodide of potassium, first recommended, I believe, by M. Roussel, of Bourdeaux.

I have resorted to its use in upwards of a dozen cases, during the last five years, where it has been advisable to arrest the secretion—e.g., where the child has been still-born, or has died a few days after birth; where, from sore nipples, injury to the breast from prior abscess, or from some accidental cause, congestion of the breast has been set up, and lacteal abscess threatened,—and in no instance have I been disappointed, even when belladonna has failed to afford relief.

The following case may serve as an illustration:—

Mrs. R., was confined of her first child on the 25th of December, 1863. The child, a weakly infant, died a few days afterwards from atelectasis pulmonum. The breasts of the mother became tumid and painful. Extract of belladonna mixed with glycerine was applied round the areolæ for two days, when the pupils became dilated, without, however any relief to the breasts. The patient was feverish and restless; the breasts were tumid and painful, and exhibited every appearance of speedy suppuration. Three grains of iodide of potassium in a saline draught was given every four hours, and five grains of Dover's powder at bedtime. Next day the breasts were less swollen, and she expressed herself as feeling much better. In the course of three days all tumefaction had subsided, and she discontinued the medicine.

The plan I adopt is to give three grains of the iodide in an ordinary saline draught every three or four hours. In from twenty-four to thirty-six hours the fever and engorgement have ceased, and in from two to three days all tumefaction has subsided, even where abscess seemed unavoidable.—*Lancet, August* 13, 1864, *p.* 179.

100.—ON SOME POINTS HAVING REFERENCE TO THE DIFFERENTIAL DIAGNOSIS OF FIBROUS TUMOURS OF THE UTERUS.

By Dr. C. H. F. Routh, Physician to the Samaritan Hospital for Women and Children.

The symptoms of fibrous tumour most dwelt upon in speaking of the disease are an enlarged abdomen, with a hard rounded and solid tumour to be felt through the abdominal parietes in and about the uterine region, extending sometimes as high as the epigastric region, both lumbar regions being clear on percussion, and the umbilicus sunken in, not projecting. The tumour is also to be felt *per vaginam*, involving the uterus; an occasional loud and systolic souffle is to be heard over the tumour; menorrhagia is more or less intense; there is absence of fluctuation; the length of the uterine cavity is increased; and, lastly, owing to the close union of the uterus and bladder, the growth is drawn so near the abdominal walls, that it precludes the passage of the hand low down between the tumour and the walls of the abdomen. I will speak of these symptoms as I go on, to test their relative value.

1. *Physical Hardness, Roundness and Solidity of the Tumour.* The feel of a fibrous tumour has been considered by many as almost pathognomonic. This, in connection with its rounded and lobulated character, is such, that the combination of the two characteristics would seem to make error almost an impossibility. Any one, however, accustomed to examine cases of cellulitis and hæmatocele, must know the contrary. I know that the same thing has been observed in cases of ovarian dropsy and it may be laid down as a general proposition, that a *thin* fluid, and *à fortiori* a *viscid* one, may be included in an inelastic bag and convey to the touch the impression of a solid.

I will illustrate this law by an experiment; and then mention a remarkable example in the living subject. Here is an ox's bladder contained within a calico bag. This bladder has been kept in spirit for a week, and is quite inelastic. The calico bag I put around it lest the bladder should burst. This bladder is now full of water and fluctuation is quite evident everywhere. At its opening however, you see I have affixed a tube connected with this pump, by which I can force in water *ad libitum*, securing its retention by this stop-cock in the connecting tube. As I pump in water, you will find that fluctuation will gradually cease, till none of you shall be able to detect it; on the contrary, it will feel quite like a solid. If this be so with so thin a covering as this membrane and piece of calico, *à fortiori* will it be difficult in many cases to recognise fluctuation through the

abdominal parietes; for I am quite sure fluids are contained within cavities of the body quite as tensely as in this bladder.

The following case, however, is so satisfactory on this point that I cannot but mention it.

An inmate of Bedlam Hospital, about thirty-five, declared herself pregnant; and Mr. Lawrence requested Dr. Greenhalgh to see her. Dr. Greenhalgh kindly allowed me to accompany him in his visit. We found a woman with a large tumour extending to above the umbilicus, very hard, nodulated, and giving altogether the impression of a solid tumour. The breasts, however, gave no indication of pregnancy. An examination *per vaginam* conveyed the same impression. The os, however, was hard; evidently that of an unimpregnated woman, and high up. The enlargement was chiefly in front of the uterus; and conveyed generally the same fibrous sensation. She passed urine freely; and indeed some was shown to us. On more carefully examining the tumour *per vaginam*, we thought that at one part we could detect some very obscure fluctuation, or at least a part less hard than others. It was thought wise that the bladder should be emptied of its contents. This was done; and about a chamber-pot and a-half of thickish urine was drawn. On examining the abdomen after the operation, the tumour was gone; and yet, had we trusted to mere manipulation, both Dr. Greenhalgh and I would almost have positively asserted that, if ever we had before felt a fibrous tumour, this was one.

2. *The Auscultatory Signs of an Uterine Fibrous Tumour* are four in number: *a.* Two souffles, one a tubular, another a vesicular murmur; *b.* A thrill; *c.* A single or double cardiac sound; *d.* Absence of multilocular arrangement indicated on percussion.

a. Fibrous tumours are sometimes the seat of a souffle. Most writers do not discriminate between the two, and appear to refer them to the same cause. Thus, it is described by Dr. M'Clintock as always

"Synchronous with the pulse; sometimes short and abrupt, a mere whiff accompanying each arterial pulsation; at other times, prolonged and musical, and not to be distinguished by the most acute and practical ear from the *bruit placentaire*. Like it, it is occasionally loud and intense for some pulsations; then becoming feeble and almost inaudible. Again, it can be diminished and suppressed by moderate pressure of the stethoscope over the spot. It is present in those who have sustained no loss of blood, as well as in the anæmic." He adds that, "although a very interesting phenomenon, it is not one of any special diagnostic value, being common to pregnancy and ovarian disease, which are the two conditions most likely to be mistaken for fibrous tumour of the uterus." (McClintock's *Diseases of Women*, p. 131.)

However unwilling to differ from so high an authority, I cannot but take exception to the sweeping conclusion drawn. Nothing can be more graphic and true than the greater part of this description; but I think the fact is, that two very different souffles are here spoken of. The true *tubular* souffles are, so far as I know, very rarely, if ever, heard in pregnancy and ovarian disease. The *bruit placentaire*, or one very like it, may be, perhaps often is.

Now, I believe that these two souffles are produced by two different causes. The first, or *vesicular*, *bruit placentaire*, if you like, is produced by the combined action of the large vessels immediately coming into and supplying the organ. The latest writer on the uterine appendages, Dr. Savage, believes these to be the only cause of souffle in fibroids, which are supplied largely by veins and arteries, usually at each side.

But, I imagine, these produce only the vesicular murmur. The same cause produces them in pregnant uteri; and it is not due to placenta, since it is heard after delivery, as long as the vessels supplying it are in the hypertrophied condition. It was long since shown by Nægelé (*On Obstetric Auscultation*, 1838), that, in aneurismal varix, where a direct communication for the blood exists, so that it passes from the artery to the vein, the opposed or interfering currents gave rise to a sound which may exactly resemble the *bruit placentaire*. The sound is also heard loudest at the point where the uterine arteries, reaching the broad ligament, become thicker in diameter, more tortuous, and sink into the uterus. How far the connexion between the arteries and veins in the pregnant or hypertrophied uterus may assist in the production of this sound, or whether the general circulation throughout the uterus must be taken into account, because so extensive, is a point for future inquiry. If we consider, however, that the arteries in the hypertrophied organ directly communicate with the large uterine veins; either, according to the Hunters through the cavernous structure of the placenta; or, according to Weber, through the network of colossal capillaries; or, according to Goodsir, through a great cavity, which is everywhere traversed or intersected by filamentous prolongations of the uterine veins—we see how, physically, a sound like that of aneurismal varix could be produced by causes somewhat analogous. The later researches of Dr. Savage will rather explain the production of the sound from an extended circulation, if we assume same the structure to be present in the impregnated organ, only more extended in the hypertrophied or pregnant uterus. Now, it is unquestionable that, in many cases of fibrous tumours at their connection with the uterus, we have, as in pregnant uteri, elephantine venous sinuses. Such was found to be the case at the *post mortem* examination of Dr.

Matthews Duncan's example of fibrous tumour, to be hereafter noticed.

This uterine murmur, or *bruit placentaire*, in either case originating from the same cause, is destroyed by pressure, if this be sufficiently strong; it may be by the stethoscope; it may be by intense uterine contraction, particularly in the vicinity and all around the *locale* of its production, exactly as it is abolished at the height of an uterine pain. Auscultation proves, then, that the souffle, after gradually rising in pitch up to the moment of greatest uterine contraction, becomes at last inaudible, except at the groins, where it is still heard, though more feebly so. For the same reasons, also, it is not heard immediately after delivery, when the uterus is firmly contracted, but again becomes audible in twenty minutes or half an hour afterwards, when, the uterine muscles having somewhat relaxed, the vessels again enlarge; a state which persists, except at intervals, for forty-eight hours or so, till such time as, in the process of involution, the vessels become permanently smaller. This, then, is one souffle which is occasionally heard in fibroids, and in every way resembles the placental souffle; and it is heard loudest at the groins, or over the entrance of the uterine arteries.

The *tubular* souffle, however, is different. It bears the same relation to the former as bronchial respiration does to vesicular, and is, I believe, due to pressure upon the aorta, and direct transmission of the aortal sounds through the fibrous growth. It needs only the continuity of a solid body between the aorta and abdominal parietes, and the aorta to be slightly compressed thereby, to give rise to these sounds.

A remarkable case illustrative of this explanation, is given by M. Hérard (*Bull. Soc. Anat.*, xxv, p. 148), where a very thin woman complained much of epigastric pulsations. There was no tumour; but auscultation revealed a souffle and a thrill. The case was diagnosed as one of aneurism. She died shortly of phthisis. The *post mortem* examination revealed a voluminous and also indurated left lobe of the liver. This it was that transmitted the aortic beat, and, by expression, produced the souffle.

We have, doubtless, all met with analogous cases, particularly in weak females, and especially where the middle lobe of the liver was indurated. Pressure over any large artery by a stethoscope will give rise to the same sound.

The position in which this sound is heard loudest also varies from that where the vesicular murmur is most audible. This is strongest at the inguinal region; the tubular souffle is generally heard loudest at some prominent point of the tumour, or within the vagina upon the inferior portions of the growth. It requires also some strength to compress the aorta through a

large fibrous tumour; and hence one reason why it is rarely, if ever, destroyed by pressure of the stethoscope.

b. This tubular souffle is occasionally accompanied by a *thrill*. This thrill is very similar to that which is communicated to the ear in the case of an aneurism of the aorta, as M. Hérard's case proves. Indeed, in well marked cases, the musical note which accompanies the souffle and thrill are so exactly alike the sounds heard in cases of aneurism in the neighbourhood of the heart, that it would seem impossible to detect a difference. Now, so far as I am aware, a thrill is never felt either in ovarian disease or in pregnancy. This is also the case in regard to the musical note. Once only have I heard this sound in the case of pregnancy. Then it was heard with the stethoscope upon the sacral region, the patient lying on her abdomen; and we can understand this. The aorta was pressed upon by the enlarged uterus, and the musical note, which could not be transmitted through the liquor amnii, was not heard in front. Behind, through the solid sacrum, it was readily heard. So far, this exceptional instance is a good explanation of its occurrence in fibroids.

c. Closely related to the tubular souffle is the *single* and *double* cardiac sound. This one sign, revealed by auscultation, I think most important; the more so, as it has not been hitherto sufficiently dwelt upon.

Let us remember that a fibrous tumour is, in most cases, a solid tumour. If it be of moderate size, and in any way can be or is compressed against the aorta directly or through the uterus —if the fibroid be placed in front of the organ—then the sounds of the aorta should be transmitted through the tumour. I do not know why it is; but these sounds are observed in practice to be of two kinds; first, a *single* sound synchronous with the systole of the heart; secondly, two sounds synchronous with and representing the double sound of the organ. I believe that whenever either of these sounds occur, you have a solid tumour between your stethoscope and the aorta; and so that it is a favourable argument, *cæteris paribus*, for believing the tumour to be fibrous. It may occur in scirrhus of the uterus also. This sound is very distinct from *impulse*. I have seen and felt impulse in ovarian dropsy; but then the sound is not heard. This is especially true in regard to the *double* cardiac sound. Ovarian tumours, except in very exceptional cases, and only where they are solid, if at all, do not transmit the cardiac sounds; fluids being generally non-conductors of sound.

I have said that the tubular souffle is often heard loudest within the vagina. Occasionally it may be heard here with a common straight stethoscope; and if this be long, and made of glass, it is very easily applied. The patient is put on her left side; the nates are brought to the edge of the bed; and the

thighs are well flexed on the body. If the woman be not too fat, and have a good perineum, and pressure be made on this part by the stethoscope, the instrument impinges the wall of the vagina against the tumour, and the souffle may be heard through it. In stout women, the stethoscope may be safely introduced *per vaginam* and made to press upon the tumour; and, because made of glass, the rubbing of the clothes upon it is scarcely heard, so that no exposure is needed.

I have also used a curved stethoscope made of glass with advantage. It may then be passed when the patient lies on her back.

As a rule, however, I prefer the instrument I now show you, which I call a *vaginoscope*. It consists of the ordinary double stethoscope, to the distal end of which is attached a wooden speculum. This may be introduced as a speculum; and the ear-pieces being applied to the ear convey any sounds heard in that region. At any rate, in obscure cases, you will find it useful.

I cannot better exemplify the truth of the preceding statements than by quoting the following remarkable case.

Miss C., aged forty-two, had pretty good health up to five years ago, since which period she had not felt so strong. The catamenia had always been regular; but until lately rather under time than over, and lasted five or six days. For the last two years, she had been more unwell; the period had lasted a week altogether, lingering a little for the succeeding week; recurring every three weeks or twenty-three days. This increase was due, not to clots, but to an unusual quantity of water, which obliged her to use two napkins at the same time. The function began at the age of 17 or 18. Before 22, she had had dysmenorrhœa for one day, not since.

About three years and a half ago, on her lifting up a heavy weight, she felt something give way in her side as if she had twisted herself there; and she could not raise herself erect for the pain for a few minutes. Three years ago, while rubbing herself for a stomach-ache she felt a round tumour in the left iliac region. Even before this she had felt some bearing down in front. There was no alteration in the breasts at the time.

The *breasts* presented no areola. There were some small follicles around, whitish; becoming whiter on tightening sideways.

The *tumour* had enlarged, because formerly she could not feel it in the erect position; while now she could. At times it was very painful; always more so before a period. She thought she could connect the enlargement with the increased catamenial flow, and the colour was less dark than it was now.

On *external palpation*, there was dulness for four inches above

the pubes. There was a projection half way between the pubes and umbilicus, of the size of an apple, quite pushing forward the abdominal parietes at this point. This was rounded, and the hand could grasp it superiorly. The dulness extended on a level with this quite to the left side. On the right side, about two inches beyond the tumour, the cæcal region was clear, as well as the two lumbar regions. All the dull parts were hard to the feel. The central projection was, however, movable upon the growth below it. It could be moved on the right side, quite near to Poupart's ligament: on the left side only half an inch. In either case, when so stretched, tight bands might be felt uniting it to the posterior growth.

Auscultation.—On the front of the first growth, extending to the right side, there was quite a musical murmur, with a thrill, ceasing on deep inspiration. Over the projection superiorly, there was no sound; just below it, however, and over the pubes, there was distinct *tubular* souffle. There was a less loud sound on the left part of the posterior growth, and *vesicular*.

Vaginal and Rectal Examination.—The os was small, high up behind the pubes; the lips were small. The whole pelvic cavity behind the vagina was filled by a large hard mass, smooth, somewhat lobulated; at the lower part, it was semi-elastic. Cystic sounding proved that the bladder was rather to the right side. The uterine sound penetrated to its normal length; an anteverted uterus, and turned rather to the right side. The finger in the rectum detected the tumour between it and the vagina, in the posterior *cul-de-sac*.

The *Vaginoscope* gave no indication of murmur. An exploratory puncture made at the inferior portion gave exit to about half an ounce of serum. This proved to be so on microscopical examination. The puncture afterwards bled freely; but the bleeding was arrested by the actual cautery.

The diagnosis was, extra-uterine fibrous tumour, with a pedicle attached to the posterior wall of the uterus, inferiorly infiltrated with serum.—*British Medical Journal, May* 28, 1864, *p.* 579.

101.—ON THE TREATMENT OF FIBROUS TUMOURS OF THE UTERUS.

By Dr. C. H. F. Routh, Physician to the Samaritan Hospital for Women and Children.

[The Surgical treatment of Fibrous Tumours of the Uterus is of two kinds: 1. Enucleation of the tumour. 2. Removal of the tumour by gastrotomy. Enucleation may be primary where it is completed at the time or within a day or two, or it may be effected by inducing gangrene or death of the tumour

by sloughing. In 1857 Mr. Hutchinson published some papers on this subject *(Retrospect*, Vol. xxxvi., p. 336.)]

The principal rules laid down by Mr. Hutchinson are: "1. The tumour must be well depressed into the pelvis by an assistant. 2. The first incisions must be very free, and pass deeply down into the tumour; thus not only completely dividing the capsule, but facilitating its bisection, should that afterwards be found requisite. 3. The opened capsule must be separated by the fingers, or, if needful, by blunt-pointed scissors, the finger being used as a director. Strong and large vulsella, with midwifery forceps, should be at hand, to be used for traction, if necessary. 4. The grand object is to draw down, after separation of the tumour, the uterus inverted with the tumour to the external parts, or as near as possible to them, which facilitates the operation. 5. After eversion has been completed, an examination should be made with the finger, also *per rectum*, &c., so as not to cut through an inverted pouch of peritoneum in separating the final attachments of the uterine tumour. 6. The uterus is then returned. Ice, ergot, stimuli, &c., are to be given as indicated by the symptoms."

The views here epitomised are so very much in accordance with common sense and sound surgery that I do not wish as a whole to controvert them. To one point only of these I would take exception. I do not believe that the grand object is to draw down the inverted uterus after separating the tumour, so as to bring the tumour as near as possible to the external parts because this renders the operation easier.

It cannot be doubted that simple traction of the uterus will often suffice to determine inflammation in and about the peritoneum around the organ. In the fatal cases of enucleation, death seems to have been due to phlebitis or peritonitis. Upon this practical point we can learn a lesson from the experience of practitioners in the removal of *polypi*, as a rule, a far easier operation if the uterus be pulled down.

One case is mentioned by M. Gaubrie *(Bull. de la Soc. Anat.*, vol. xvii. p. 209) where a polypus, supposed to be attached to the cervix (but found after death to be attached to the fundus), was pulled down forcibly. The pedicle yielded and it came away; yet that patent died from latent peritonitis. After death, the uterus was found healthy; but pus was found in the pelvis. Another case is mentioned by M. Demeaux *(Ibid.*, vol. xviii, p. 41) in which an enormous polypoid growth filled the cavity of the uterus. It was pulled down to the vulva, removed, and the parts replaced. There was no bleeding. Peritonitis followed and death two days subsequently. The *post mortem* examination revealed pus in the pelvic cavity. No uterus could be

found in the pelvis; but a puckering and a sunken-in portion, within which the ovaries and a vaginal tumour, which was the inverted uterus, were found. This inversion, it is true, was supposed to have been the result of the weighty polypoid growth before traction had been employed. Yet death from peritonitis was the result of the operation. A more remarkable case, however is quoted by M. Pigné (*Ibid.*, vol. xiv., p. 11). This was a polypus as large as a fist, which was taken from a dead woman. During life an attempt was made to remove it; but the finger being first introduced within the rectum, no uterus could be felt. All extraction was now stopped, on the supposition that the tumour was an inverted uterus. Peritonitis and death followed. The *post mortem* examination revealed a pediculated polypus within a very small and anteverted uterus. No injury whatever of the peritoneum had taken place. The traction alone produced the peritonitis. Dr. Greenhalgh has informed me of a case which he saw at Würzburgh, where the mere traction of the uterus downwards produced peritonitis and death.

In the recorded cases of enucleation, where traction is mentioned particularly as having been made, the results may be referred to two heads; viz., where the uterus or the tumour was pulled down by fingers, a string, or other violent means; and, secondly, where this was done by forceps. The result in the two cases is very different. Of eight cases, in all but two of which the operation was that of primary enucleation—one being secondary, the other failing altogether—in three, the uterus was for the time completely inverted. Three cases died; in one of these, eversion had occurred; in another, forcible attempts were made to pull down the uterus, which failed.

In eight other cases, in all of which but one (where the operation failed, although the tumour sloughed away afterwards) the operation was primary enucleation, and the forceps were used, no deaths occurred. In two, the uterus was inverted. In two cases, it was the uterus which is stated to have been pulled down by the forceps. In the remaining six, it was the tumour which was so drawn down. All did well, except one patient, who had phlegmasia, and whose convalescence was not established till two months. All the tumours, however, where it is stated, were small; except in the patient who had phlegmasia, where it was large; and in another, where the tumour weighed eighteen ounces, and the diameters were four inches by six.

Was this difference in the result due to the better regulated traction which can be exerted by a forceps, or to the better direction given by it? Probably, where the forceps were used, the tumours were low down in the true pelvis, and so easily

included in them. Short forceps were used in every case; and, therefore, it would seem that the traction was less forcible. Whenever these were used, the results were more satisfactory. The fact is indubitable. Still, it seems difficult to say to what cause the occurrence of peritonitis is due, where it so occurs; when we know that in very many other cases where traction is employed it does not occur.

In explanation, I have but three suggestions to make. In cases of retroversion, I have never seen peritonitis follow traction to restore the organ to a straight direction, so as to allow the admission of the sound. Is it because in these cases the peritoneum is no longer in its normal state, already changed by the very unusual disturbances to which it has for some time past been subject? This is certainly true in many cases of ovariotomy, where numerous adhesions exist. Secondly, peritonitis, and accidents of like nature, are rare, if our patients have been well purged and prepared by remedies before operation; a precaution, which, in the case of polypoid growths, is often neglected. Will this explain the difference? Thirdly, there is doubtless, in some cases, idiosyncracy and a predisposition to peritonitis.

The practical conclusion, at any rate, to be deduced is, that the very traction which is necessary in these cases is often in itself a source of danger, and a cause of death; and therefore, if possible, it should be avoided.

Enucleation by the Induction of Gangrene, or *Secondary Enucleation*, as it is called, is a much more tedious operation. Out of fifteen cases mentioned by Mr. Hutchinson, nine recovered, or 60 per cent.; and six died, or 40 per cent. In my table, of ten cases, in one the result was not stated. Of the remaining nine, four died, or 44.4 per cent.; and five recovered, or 55.6 per cent.

Mr. Hutchinson has concluded that, if other unpublished cases were taken into account, the results of the two modes of operation would be identical. The above figures, however, so far as they go, prove that enucleation by the induction of gangrene is positively less fatal than primary enucleation. Is this due to the traction which is employed being less marked?

The modes in which this operation has been practised have been various. The French method consists in using the knife, in most cases without the use of ergot at all. Dr. Atlee's consists in using, in the first place, ergot in repeated doses, so as to influence the uterus to contract and forcibly eject the tumour. Then the incision is made through the capsule, the ergot being continued, and the tumour gradually separated from the cyst by the finger, cutting, by the knife or scissors, any adhesions which may interfere with such separation. This is continued from

time to time; the tumour in the meanwhile sphacelates and comes out by pieces, until the whole has come away, or what remains is capable of enucleation and removal. There can be no doubt that Dr. Atlee's method is an improvement upon that of the French school. It provides a *vis a tergo* to assist the operator.

Again, Dr. Atlee does not limit his operation of enucleation to the *uterus*. In several cases where, from the size of the tumour or its position low down in the pelvis, while the uterus is high up or difficult to reach, and in cases of extrauterine fibroid, which occupies similarly a true pelvic position, he does not hesitate to cut right through the *vagina*, so enucleating the tumour. This he performed in several cases; and, so far as I know, he was the first to attempt this mode of procedure.

In estimating the degree of mortality due to enucleation by the induction of gangrene, we learn again a lesson from what occurs in some cases of polypi, which are tied and allowed to slough away.

The experience of Drs. Robert Lee and Mc'Clintock gives the following numerical results of cases in which the ligature was applied.

	Cases.	Deaths.	Per Cent.
Dr. Robert Lee.....	20.....	9.....	45
Dr. Mc'Clintock	10.....	3.....	30
	30	12	40

And, no doubt, with a large sloughing mass in the vagina, exposed to the air and putrefaction, the absorption of putrid pus is a natural result. The same is true with regard to the fibroid within its cyst, only to a greater degree. In the case of polypus, we have merely mucous membrane, which is our absorptive surface. In the case of the enucleated fibroid, we have a raw ulcerated surface of the cyst, that part which is the vascular part of the tumour, and therefore eminently absorptive, ready to take into the system the vitiated pus. The surprise is that, in such cases recovery ever occurs. Fortunately, the *vis medicatrix naturæ* is often powerful enough to acomplish it. It is for this reason that I think Mr. Brown overrates the beneficial results of his modification in the operation, in first incising the os and allowing it to heal before he proceeds to gouging or enucleation. It is of use, doubtless, as it removes one additional source of absorption; but others remain.

The practical lession which is taught by these remarks, is the necessity of frequent injections and washing with disinfectants, and obviating the production and long contiguity with ulcerated surfaces of effete and putrid matters.

Enucleation by Gouging, and inducing gangrene subsequently, is a modification of Mr. Brown's.

The instrument which he uses I now show you. It has already been exhibited before this Society, and, therefore, need scarcely detain us long. It was originally devised by Mr. Philip Harper. It consists of a hollow tube of steel with cutting knives. Contained in this tube is a hook, which can be pushed up by a spring, and thus grasps the tumour, whilst circular knives are carried through by means of a screw. In this way, a piece can be actually cut out of a tumour much in the same way as the central piece is cored out of an apple.

In the *Obstetrical Transactions*, Mr. Brown has published several cases exemplifying this mode of treatment. I may remark, however, that it is restricted by him to *intrauterine fibrous tumours of the non-pedunculated form*, growing from the inside of the uterus from a broad base. Mr. Brown has given us four cases in which he gouged in this manner. In three, a cure followed; but in one, the operation led to a fatal result. This death he attributes to the absorption of putrid pus through the cut edges of the cervix, which was previously laid open to expose the contained tumours. Hence, at present, his mode is in the first place to lay open the cervix, and to wait two or three days, or longer, till this has healed, before he proceeds to gouge.

The method pursued after the gouging, is to plug up the hole thus made by oiled lint, to arrest hemorrhage and provoke sloughing of the tumour.

In three of his published cases, however, the tumours were not gouged. In one the tumour was broken up by a pair of sharp scissors.

I may say that, through the kindness of Mr. Brown, (who has given me the notes of several of his cases, even hitherto unpublished), I know of two more examples in which, after the incision of the os, the tumour was broken up by scissors; in all of which recovery, in one case disappearance of the tumour, followed.

But a method which is likely to supersede in great measure these more bloody operations, is simple incision of the os, subsequently carried right through a portion of the tumour.

A published case of Mr. Brown, given in the *Obstetrical Transactions*, (vol. iii, p. 76,) is, however peculiarly interesting, as the cure was open to ocular inspection, a piece of good fortune not always met with.

This was the case of a single woman, in whom, some seven years previously, he had removed from the os uteri a fibrous growth of about the size of a walnut; and in whom, at the time of the second operation, he had distinctly made out three fibrous tumours just within the os and projecting into the vagina. The

os and cervix were freely cut open; and then each of these tumours was deeply cut into; the cut surfaces being dressed with oiled lint, and the vagina plugged. All these dressings were removed in forty-eight hours, and the vagina daily injected. A month afterwards, two out of the three growths had entirely disappeared, and the third was reduced to half its size.

In two other unpublished cases furnished to me by Mr. Brown, the same result was as conclusively observed. I do not dwell on these, because they are as yet unpublished. Altogether, he has mentioned to me ten cases in which this simple plan of incision of the external os was practised with the best results. As these are, however, only a few among several which will shortly be made public, I only ask you to wait and judge for yourselves.

Here we have, then, a practical lesson taught us. The mere incision will suffice to cause the absorption of the tumour. It is a lesson thus taught, from which Mr. Brown appears himself to have profited, as I now learn that in most cases he no longer gouges, but makes free incisions. The plan is safer. Sloughing in the tumour is thus set up, and this is disintegrated, and diminishes in size, and finally disappears.—*British Medical Journal, July* 16, 1864, *p.* 53.

102.—TWO CASES OF UTERINE TUMOUR MORE OR LESS SIMULATING OVARIAN DISEASE.

By Dr. W. T. GAIRDNER, Professor of Medicine in the University of Glasgow.

[The study of abdominal tumours has, since the remarkable success of ovariotomy and its adoption by the profession at large, assumed an importance not previously possessed by it. Is a given tumour cystic, or solid, or partly the one and partly the other? Is it ovarian, uterine, renal, splenic, hepatic, peritoneal? If ovarian, is it free, or adherent?—one cyst, or many?—simple, or malignant?—unbroken or ruptured?

The two following cases, in both of which ovarian disease was supposed to be present by persons of considerable experience, are of more than ordinary interest.]

The first case I shall relate is one in which a large and apparently homogeneous tumour, arising from the pelvis, was supposed by the majority of those who examined it to be either in whole or in part ovarian; the presumption to this effect arising from some points in the early history of the tumour, and from the peculiar elasticity of its resistance to pressure, which to some highly skilled observers appeared to convey an impression of its cystic character. The other case is one in which a pelvic

tumour, originally solid and of moderate size, became afterwards the centre of a large fluid effusion; and this secondary development of the tumour being, not unnaturally, supposed an ovarian cyst, was about to have been tapped, when a spontaneous change took place, which averted the operation, and restored the tumour to its original character. In both of these cases it is very evident that a mistake in diagnosis, rashly adopted by a too sanguine ovariotomist, might have led to very serious results, and the details of the differential diagnosis, though perhaps not containing anything absolutely novel, will therefore, I trust, be received by the Society as not devoid of interest. In both cases I have been careful to preserve, as much as is consistent with the object of this paper, the very form and words of the original notes made at the time of observation:—

Case 1.—*Large Abdominal Tumour, of doubtfully solid consistence, and supposed by some to be cystic. Frequent uterine hemorrhages, leading to marked anæmia. Question of operation, Diagnosis of uterine fibroid. Remarkable effect of the ergot of rye.* —Mrs. R., aged forty-five, admitted to the Royal Infirmary, ward 8, on 9th July, 1863. In the very brief note taken at the time of admission, I find the summary of the diagnosis made at this time in the words, "A uterine tumour of four years' growth." I believe, however, that these words expressed only my general understanding of the facts, and by no means the result of a precise diagnosis. The record is by the late Dr. Hamilton, and was in accordance with my instructions that all cases not reported in detail should be noted in the way of a brief summary. The principal symptoms recorded on admission are, uterine hemorrhage and pain in the back; and the treatment adopted was by cold douches, opiate enemata, and tincture of muriate of iron internally, followed by gallic acid in frequent doses of gr. x., and a moderate allowance of wine. It was also on more than one occasion found desirable to plug the vagina.

In the course of the next six weeks this tumour excited much attention, in consequence of the interest felt at the time in the question of ovariotomy. Many of my friends had an opportunity of examining the case, and, rather to my surprise, some of the opinions given me were very confidently to the effect that the tumour was ovarian, and of the left ovary. As this opinion appeared to me to demand very careful consideration, and as the responsibility of recommending or of declining to recommend an operative proceeding was unquestionably very serious, I determined, before calling any final consultation, to make carefully renewed examinations in detail as to the possibility or probability of ovarian disease. The results of these examinations will be found in the following report, dated August 19:—

"The tumour fills a considerable part of the abdomen, from

the pelvis upwards, and has at the present moment a good deal of resemblance, in size and position to a pregnant uterus about full time. It could scarcely be discovered from its present relations that it had arisen from one side or other of the abdomen, tympanitic percussion being present in both iliac regions; but her personal statements and convictions rather tend to the belief that originally it inclined more to the left side, and she says it even now, when sitting up, inclines to the left side. Tumour is pretty movable with respect to the parietes, but from its size does not admit of changing place much in relation to the other viscera. Has had sensations of movement in tumour more or less resembling quickening. Percussion in front of the tumour is absolutely dull, from pubes to beyond umbilicus; but between umbilicus and epigastrium, gastric tympanitic percussion is distinct. The resistance given by the tumour to the hand is not that of a dense, solid mass, but neither is it distinctly that of fluid, and there is no fluctuation from side to side, nor even any distinct fluctuation from any one point to another; the sensation is rather that of a somewhat elastic, semi-solid mass, without any continuous cyst, but also without any great irregularities of surface, or abrupt internal changes of consistence. No nodules or hard masses can be detected at any point.

Examined per vaginam, the uterus is found rather high in pelvis, but not so high as to lead necessarily to the belief that it is drawn up by the tumour. The os is rather wide, but otherwise natural. The shape of the cervix is not that of a uniformly enlarged uterus. The cavity is somewhat elongated, probably about an inch, and with the uterine sound the body of the organ can be moved to a certain extent, independently of the tumour. On the other hand, pressure on the tumour from above impinges slightly on the uterus, but not so decidedly as to lead to the belief that the tumour and the uterus are one mass. Breasts are perhaps a very little enlarged, and there is an approach to development of the follicles, but nothing like an increase in the glandular substance. There has been a good deal of hemorrhage since admission, and a good deal of clotted blood has come away; latterly, however, there has been an intermission of the hemorrhage, and patient has been ever since feeling better and stronger. Within the last few hours there has been a tendency to its return, and patient has resumed the use of gallic acid in 10 gr. doses as formerly, to be regulated by the amount of hemorrhage.

There has been at no time any considerable pain, but rather a feeling of weight and burden, with weakness of back, vague uneasiness, and swelling of limbs; this latter symptom, however, being easily under control by lying on her back, and therefore not having been observed since admission. Handling of

the tumour in the various examinations has not caused much pain; but on one of the occasions when the uterine sound was passed she had pain in her back, lasting the greater part of the day. She now states quite decidedly that the tumour was noticed at least four years ago, and that it had when first noticed already attained considerable size, perhaps the size of a ball, in the left iliac and lateral region, At this time she was subject to prolapsus, and she thinks there can be no mistake about this, as she was not only told so by a doctor, but used to feel something hard herself come into the passage when she stood up. At the same time it is to be remarked that she has had this sensation several times since admission, and even so late as yesterday, while nothing observed by any of the physicians makes it probable that there is really prolapsus. Patient is very much blanched, and has a yellowish hue, not unlike that of carcinomatous disease, but there is nothing in the physical examination to make it probable that the tumour is of this nature. General health otherwise good; appetite good; no fever. Pulse after examination 94; tongue clean; respiration quiet.

"It does not appear that there is any very serious obstruction by the tumour either to micturition or defecation, but she states that at the early period of its growth micturition used to be very frequent, perhaps as often as forty times in the day; and that latterly there has been at times a tendency to obstruction of the bowels, and a sense of undue pressure during the act of defecation. In regard to the hemorrhages, she states that at first they used to come about the close of the monthly periods, but that latterly the floodings have come at once at irregular intervals, and without any warning. On being particularly questioned, she remarks upon a fall that she had five years ago as being a possible cause of her complaint; the fall was upon the lower part of her back, and caused great pain, laying her up for about a fortnight. She went to a doctor, but got only a liniment, and on after consideration it does not appear that her health has ever been re-established. Her previous history as regards child-bearing is as follows:—She has had five living children and one miscarriage; the last pregnancy was a living child, and there was nothing unusual in any of her deliveries. Husband died thirteen years ago. On one occasion, however, shortly after the birth of her second child, she felt as if something had given way while she was on her knees doing up the fireplace at night, and some time after this she had a very severe pain in left side, lasting a night. From these two occasions she dates the tendency to prolapsus, but though advised to submit to a medical examination she did not do so; and her other children were born naturally after this. Since the death of her husband thirteen years ago, she has menstruated with great

regularity on the whole; and even since the severe floodings she thinks the regular discharges have continued, though rather frequent. On one occasion only she has been disappointed of the usual discharge, and this was since the floodings commenced. On being particularly questioned, however, she states that she 'has always had a large quantity,' and explains that this refers to the period since her husband's death. She took little notice of this at the time, though it had not been a habit with her in early life to have more than other women. On looking back, however, she is now satisfied that for many years before she can say there was anything like a flooding, the menstrual discharges were in decided excess, and this to a morbid and weakening extent. Has had more or less leucorrhœa all her life, and this tendency also has increased since she ceased to bear children."

It must be here stated, that although somewhat shaken at one time in my first belief as to the exclusively uterine origin of the tumour, I never adopted the view of its being exclusively or chiefly an ovarian cyst. It was, however, difficult to avoid admitting the possibility of a combination of uterine and ovarian disease; and as the opinions of those who believed the tumour to be, at least partly, cystic in character were entitled to great weight, I was disposed to the compromise of regarding the larger swelling as at all events *possibly* ovarian, while the hemorrhages and pains were with far greater probability to be referred to a uterine tumour. Although for obvious reasons I prefer to avoid mentioning names, I may state that this balanced state of opinion was shared by more than one of my colleagues. Under these circumstances the practical questions connected with the case assumed, if possible, a more serious aspect than ever, and in particular, the following difficulties pressed upon my mind the more heavily, that careful inquiries in the best-informed quarters at hand failed to elicit any very precise information on the subject. It became necessary, *e.g.*, to inquire—

1. Supposing, for the sake of argument, the tumour to be ovarian *only*, would the hemorrhages probably be arrested by its removal?

2. Supposing the hemorrhages to have a *separate* uterine cause (as I all along believed to be probable), what effect would be produced on them by the excision of a diseased ovary; and what effect would the presence of uterine disease have on the probabilities of success in an ovarian operation?

3. Supposing, in case of extremity, an operation performed to remove so much of the tumour as should be found to be removable, and at all events, if at all possible, to remove the cause of the hemorrhages, would it be justifiable to attempt the excision of a uterine growth believed to be of immediate danger to life?

Having failed up to this period of the case to obtain a satisfactory solution of these questions, and being personally still of opinion that the greater part, if not the whole, of the disease might probably be uterine, it occurred to me to submit a brief statement of the facts hitherto ascertained to the judgment of a wider circle than was accessible to me close at hand; and this, especially in the hope of attracting the attention, and eliciting the opinion, of some of the English surgeons who had given special attention to operations upon the pelvic organs. With this view I determined on publishing a statement, founded essentially on the preceding report, in the *Medical Times and Gazette* of August 29th, 1863; and this paper will be found on examination to reflect very faithfully the doubts and difficulties I have indicated above.

I owe it to the kindness and courtesy of the friends who responded to this appeal to state, that their communications by private letter were of the greatest possible service to me, and contributed, in a degree which can hardly be overestimated, to the removal of the difficulties felt with regard to this case. It is with a certain feeling of reserve and delicacy that I allude to opinions given in this manner, as it is probable they may be considered by their authors as not quite fit for publication; but I have fortunately the free permission of Mr. Spencer Wells to make this use of the following valuable letter, in regard to which I will only remark, that it was founded on a private statement of the case to Mr. Wells himself, and not on the subsequent publication in the *Medical Times and Gazette*:—

"I think your case may be explained on three suppositions—

"1st (and most probable). That a fibrous tumour of the uterus, of moderate size, exists with an ovarian tumour.

"2nd. That the tumour is not ovarian, but a fibro-cystic tumour of the uterus; or—

"3rd. That a sanguineous cyst of the ovary empties itself through the Fallopian tube and uterus.

"As to 1st. It is not uncommon to find small fibroid peritoneal outgrowths from the uterus—or larger insterstitial growths—or ingrowths toward the uterine cavity and vagina, complicating ovarian disease, and this I believe to be the usual cause of menorrhagia or uterine hemorrhage, when it is observed in patients suffering from ovarian disease. The rule is (and the exceptions are rare) that menstruation is scanty and hemorrhage rare in simple uncomplicated ovarian disease.

"2nd. It is very difficult—perhaps impossible—to distinguish between a multilocular ovarian cyst and a fibro-cystic uterine tumour when the cysts are large and the connection with the rest of the uterus elongated. I removed one such tumour, which some men of great experience took to be ovarian. The

cyst held twenty-six pints of fluid. The seat of pedicle connecting it with the uterus was three to four inches long, and the uterus moved quite independently of the tumour. Indeed, it was not till I came to divide the pedicle that I knew what I had to deal with.

"3rd. It is not very uncommon to find the contents of ovarian cysts, varying very much in character, emptying themselves through the uterus and Fallopian tube. I have seen (by means of the speculum) ovarian fluid escaping through the os uteri, and I have a preparation in which the communication through the Fallopian tube is visible. The patient was seventy years of age—ceased to menstruate twenty years before, but a year or two before death began to menstruate again (as she thought). But it was rather uterine hemorrhage, recurring with tolerable regularity, than menstruation. At last she died rather suddenly, and after death three to four pounds of clotted blood was found in the peritoneal cavity, which had proceeded from an ovarian cyst, with a very vascular internal coat. It had burst, but the Fallopian tube (as large as a crow quill) communicated freely between the cavity of the cyst and the cavity of the uterus.

"If the life of the patient under your care is threatened by hemorrhage, and this cannot be checked by ordinary means, I should think it would be wrong to allow her to die without trying what surgery could do to save her."

From another very eminent surgeon I received a most instructive letter, from which I am sure he will allow me to make the following extracts, though I do not consider that I am authorised to submit them as containing a matured and elaborated opinion :—

"As you request facts in reference to your case recorded in this week's Gazette, I feel inclined to mention briefly one or two similar ones. I have three times had patients sent to me with a view to ovariotomy, when on careful examination I came to the conviction that the tumour was uterine. In all hemorrhage had been a very prominent symptom, and in two of them the patients were exceedingly reduced in health by it. Two of these I know to be still living ; a period of five years in one, and four in another, having elapsed since I first saw them. In both the liability to floodings has ceased. Both patients remain of the size of the full period of pregnancy, but without other inconvenience. The third I saw but once. The careful perusal of your case leaves on my mind a strong impression that your patient is the subject of an *uterine* tumour. Not a few such have been removed by abdominal section, some in mistake for ovarian cysts, others after a correct diagnosis. I know of very few facts which encourage to a repetition of such operations, and of many which warn against them. Such uterine tumours

differ most essentially from ovarian ones in the prospect of life to the patient, for I believe they usually cease to cause hemorrhage and to grow."

A third surgeon of high standing concurs with the last in the opinion that Mrs. R.'s case is probably one of uterine tumour, and adduces several facts in favour of the view that "surgery can give no assistance." He adds, "I may tell you that I once saw a case, of which yours forcibly reminded me, laid on the table, chloroformed, and the peritoneal incision completed, all this by an experienced accoucheur, when the tumour was distinctly seen to be entirely uterine. The wound was then closed up, and the patient is still alive."

From more than one obstetric authority I received either verbally or in writing, somewhat similar opinions, the tendency of the whole correspondence being decidedly unfavourable to operative interference. In regard to a point of diagnosis which had weighed very strongly with me from the first in this case, but upon which I found considerable difficulty in arriving at a conclusion founded on accurately observed facts, the following concurs very closely with what I am disposed to consider the true state of the case, and may possibly be of use to others called to give advice in circumstances like those here narrated. "I have never known," writes a well-informed and careful observer, of large special experience in diseases of the female organs, "an ovarian tumour cause the hemorrhage you describe. It will often produce menorrhagia, but not flooding; whereas uterine tumours of all kinds are commonly associated with this latter symptom." Several other obstetricians of very large experience have assured me that ovarian tumours scarcely ever cause considerable hemorrhage; and although I am bound to admit that opinions of an opposite character have reached me, I incline to accept the doctrine here stated as substantially correct, as it certainly is in accordance with my own comparatively limited experience.

To return to the case of Mrs. R. In consequence of various suggestions as regards the diagnosis, some renewed observations were made, in which I had the valuable assistance of my friend Dr. Leishman, under whose care I left Mrs. R., during a brief visit to the continent. On passing the uterine sound with some additional precautions, Dr. Leishman found that it "passed for about three inches with ease, the *os uteri* being tilted forwards towards the symphysis, which seemed to render the introduction of the sound even easier than usual, so far. After some attempts to ascertain the size of the cavity, the handle of the sound was depressed, and the point of the instrument at once passed up several inches further than before (about eight inches

in all); and even this may perhaps not be the end of the cavity. The sound was not bloody on withdrawal."

Dr. Leishman, also, following out an indication referred to repeatedly in the correspondence above mentioned, discovered for the first time a very distinct souffle, heard over a considerable space above the left groin. This souffle has since been constantly observed, and is, I am inclined to think, quite conclusive as to the uterine origin of the tumour; while the greater length of the uterine cavity than was at first discovered, removes all difficulty in supposing the whole mass to have this origin.

But perhaps the most important observation made by Dr. Leishman in this very remarkable case, is that with which I have now to close this somewhat protracted narrative. On September 16th, in the evening, Mrs. R. had a rather alarming return of hemorrhage; and as she had been very much reduced by previous attacks, twenty grains of ergot of rye were at once given, in the form of infusion. The effect of this dose was a complete arrest of the hemorrhage, but along with this effect severe pains were felt both in the back and in the tumour, which the patient spontaneously compared to those of labour. But the most interesting fact of all is, the coincidence of these changes with a very remarkable diminution in the size, and change in the consistence of the tumour, which I had no difficulty in verifying on my return to duty, and which I find noted in the following terms in the ward journal, under date of 16th September:— "The tumour, which previously had been soft and semifluctuant (see description in former report, p. 343), has become firm and solid, and to day feels quite like a solid tumour. She spontaneously drew attention to this change in the consistence of the tumour, and she thinks it is rather smaller in size."

I have only to add that this change has been, so far as hitherto observed, a permanent one. During the remaining stay of the patient in the hospital, I took great pains to bring her case under the notice of some of those who at a previous period had regarded the tumour as cystic, owing to the presence, as they considered, of a character resembling fluctuation. The solidification of the tumour was quite apparent to all, and those who had most accurately observed it considered that the diminution in bulk might be about one-third, at the time the patient left the house (December 12th). The last report represents her as greatly improved in health, and although the tendency to bleeding was not entirely controlled, it was very much diminished from the 16th September, onwards. Her own convictions were quite decided to the last in connecting this improvement with the dose of ergot, and she stated to me that the pain experienced after it, lasting for ten or eleven days, and requiring repeated administration of sedatives, was totally different from

anything she had experienced before or since, with the exception of labour-pains.

The conclusions I draw from this case shall be very briefly stated, as follows:—

1. The latter portion of the narrative clearly establishes the uterine origin of the tumonr.

2. It therefore follows that a uterine tumour, *when the uterus is relaxed*, may resemble an ovarian cyst so far as to give the impression of fluctuation in some degree even to skilful and practised hands.

3. In such cases the co-existence of considerable uterine hemorrhage with the tumour is a strong, if not absolute, proof of its uterine origin.

4. A souffle in either groin is probably conclusive.

5. Operative interference is scarcely warrantable, unless on a very strong proof of immediate danger to life.

6. A dose of ergot of rye may not only restrain hemorrhage, but bring a more or less permanent solidification of the tumour, together with marked diminution in its size.

I have not here entered on the questions connected with the operations proposed in various quarters, for dealing with fibrous tumours of the uterus *per vaginam*, as the great improvement in the health of this patient has not allowed any room for these questions being raised in a practical shape at present.—*Glasgow Medical Journal, July* 1864, *p.* 178.

103.—ON TREATMENT OF RETROFLEXION OF THE UTERUS BY OPERATION.

By I. Baker Brown, Esq., Senior Surgeon to the London Surgical Home.

[The patient was a widow lady who had had a large family of children, and was suffering from complete retroflexion of the uterus. The treatment ordinarily recommended in such a case is rest and the use of the stem pessary. The stem is introduced into the os and cervix while the cupped extremity rests upon the floor of the vagina. This treatment is, however, exceedingly unsatisfactory.]

It occurred to me that the muscular tissue of the uterus was not passive in retroflexion, and that there was probably active contraction at the point of flexion. If this were the case, incision of the os and cervix should relieve to some extent, and possibly remedy, the retroflexion. I determined to act upon the supposition in the case in question. Proceeding in the manner described in my last lecture, I fixed the uterus, introduced the hysterotome within the os and cervix, and divided

the parts freely up to, but not through, the internal os. The result exceeded my anticipations. Without adopting any other means, excepting rest, the uterus resumed its normal form, and in two months the patient left the Home perfectly cured.

Shortly after the occurrence of this case, a very distinguished lady, who had been suffering for fourteen years from retroflexion, placed herself under my care. She had been subjected to every known mode of treatment, and had even worn a stem pessary three years and a half, without obtaining any benefit. The difficulty of relieving the bowels was exceedingly great, and the sense of bearing down, when she stood erect, was so oppressive as to prevent walking exercise, or standing, except to a very limited extent. Finding that the fundus moved freely, and feeling certain that there were no adhesions to prevent the uterus resuming its proper position, I urged her to submit to the same mode of treatment as had proved so successful in the case just stated. After some hesitation she assented. I incised the os and cervix. The os had become so hardened, doubtless from the use of the stem pessary, that it resisted the blade like firm cartilage, and the sound of the incisions was distinctly heard throughout the room. Immediately after the incisions had been made, the uterus seemed to spring into its place. I plugged the vagina well with oiled lint, as I am accustomed to do after incision of the os and cervix. On the third day after the operation an injection was given with great ease, and the bowels acted without discomfort. For fourteen years the bowels had never acted without the use of five or six injections, and great difficulty had been experienced in administering them. In the subsequent treatment of the case the bowels were readily relieved by mild laxatives, which were substituted for injections. Five weeks after the operation my patient was able to walk an hour with comfort and advantage The uterus had recovered its normal form and position, and the sufferings to which she had been exposed many years were entirely done away with. Since then there has been no return of the retroflexion.

The happy results of these two cases convinced me that the method of treatment I had adopted was sound; and subsequent experience has confirmed my early conviction. I have pursued the same method frequently in private practice and on several occasions in this Home, and in every instance with success. Let me mention, that the introduction of the hysterotome into the cervix uteri in cases of retroflextion is sometimes attended with considerable difficulty, and some little tact must be exercised in order to pass the instrument beyond the flexed part.

Incomplete retroflexion is not uncommon in unmarried females. The following case may be cited as an example:—

M. O., aged twenty-six, was admitted into the Home on the 18th of March of the present year. She had never been strong. For nine years she had suffered great pain, particularly in the groin, at the menstrual periods, and menstruation had been very irregular. She had also been subject to frequent vomiting for six years; and for some time she had experienced much pain whilst evacuating the bowels and bladder. On examination, the uterus was found to be slightly retroflexed, the clitoris was large and hard, and there was painful fissure of the rectum. The patient had worn pessaries for fifteen months at a time, but with no permanent benefit. This case is an apt illustration of many often met with. The abnormal condition of the uterus had arisen from, and was kept up by, habits of delection, to which the patient confessed she freely gave way. The hardness of the clitoris was due also to this cause, and probably the fissure of the rectum—a condition often present in these cases. The true treatment, then, would be to remove the great incitement to self-indulgence, the enlarged and excitable clitoris, and cure the fissure of the rectum. This being done, the uterus probably would recover its normal state without further interference. I excised the clitoris, therefore, and divided the fissure, and in two months the patient left the Home cured. The uterus was normal in form and site, the fissure of the rectum had healed, and the tendency to self-indulgence was removed.

The true source of uterine disturbance and displacement in both the married and the single is to be sought more frequently than is commonly supposed in habits of self-indulgence. In cases thus originating, it is only by excision of the clitoris that permanent relief can be obtained. I stand probably alone in attributing so important a part in the production of uterine disturbance and displacement to self-indulgence; but the extended experience I have had of cases which have yielded to no other treatment than excision of the clitoris, and the happy results which have followed early recourse to the operation, convince me that the opinion I have formed, and the practice which I have based upon it, are both sound. Self-indulgence, it is important to remember, is not confined to the unmarried, and it is frequently a source of sterility in the married, chiefly in consequence of the retroversion and retroflexion of the uterus to which it is apt to give rise. In such cases excision of the clitoris is a sure remedy for the sterility, and dilatation of the mouth of the uterus will prove of no utility.

Little need be said of anteflexion of the uterus. The condition is rare, and, on the whole, it gives rise to less inconvenience than either retroversion or retroflexion. The treatment to be pursued is similar to that recommended for retroversion.

While speaking of retroversion, I omitted to mention that

the os uteri is sometimes thrown forwards under the arch of the pubis, so as to press upon the urethra and prevent the bladder being readily or fully emptied. Several years ago, an unmarried lady, about thirty years of age, was brought to me from Brighton, supposed to be suffering from ovarian dropsy. On examination, I found the uterus retroverted, the os being fixed tight under the arch of the pubis. Being dissatisfied with her account of the freedom with which she passed water, I introduced a catheter into the bladder. An enormous flow of fetid urine followed, and the abdominal tumour disappeared. The supposed tumour, indeed, proved to be the distended bladder. The retroverted uterus had prevented the proper emptying of the bladder from day to day, and the urine had gradually accumulated so as to cause the distension which had been mistaken for ovarian dropsy.—*Lancet, August* 13, 1864, *p.* 174.

104.—ON TANGLE TENTS.

By Dr. J. Y. Simpson, Professor of Medicine and Midwifery in the University of Edinburgh.

[The following is a resumé of a paper read by Dr. Simpson at a meeting of the Obstetrical Society of Edinburgh.]

Professor Simpson reminded the society that a variety of substances had been used as tents, passed into the os and cervix uteri with the view of dilating the canal, so as to get access to the interior of the uterus for diagnostic and therapeutic purposes. In olden times they had made use of the dried gentian root, which was described by Cooke in his "Marrow of Surgery," and by various other writers, as the best substance for this purpose. His friend, Dr. Horatio Storrer, of Boston, had a few years ago proposed tents of the bark of the slippery elm. What he (Prof. S.) had long been in the habit of using, as they were all aware, was a piece of sponge, which was brought into the proper shape by dipping it in a solution of gum, compressing it into a conical form by a piece of whip-cord wound round it, and then drying it in an oven. Dr. Braithwaite had afterwards pointed out to him that the gum was unnecessary, for if the sponge were compressed after being simply dipped in hot water, it retained its form on being dried, and all that was then needed was to dip it in a mixture of wax and lard, to make for it an external coating, to facilitate its introduction into the uterine cavity. Latterly, Dr. Sloan, of Ayr, has proposed as a substitute for compressed sponge the dried stems of the sea-tangle (*Laminaria digitata*), which is thrown up in such abundance along all our coasts. In its dried and collapsed condition it could be cut or filed down to any shape or size, and when placed in water, or

brought into contact with the fluids of the uterus, it would swell up to such a degree that a piece of tangle would expand in the course of a few hours to about three times its original thickness. For some time past he (Prof. Simpson) had used the tangle-tents, and had found them to fulfil all the indications of a uterine tent so admirably, that he believed they would ultimately replace the sponge and other substances hitherto employed. He had brought with him some specimens of tangle-tents made by Krohne in London, that the Fellows might have an opportunity of seeing them; and also some bougies for the male urethra, and for the lachrymal ducts,—for its application was not restricted to the uterus, bnt might come into play for the dilatation of any kind of constricted canal. The tangle did not perhaps distend to such an extent as the sponge, but it exerted much greater power of dilatation: for whilst a piece of sponge, which on withdrawal seemed to be of the thickness of the thumb, was found to have left a canal which would barely admit the little finger, the canal left on the removal of a piece of tangle was always found to correspond throughout in measurement with the full size of the expanded tent. The tangle had a further advantage over the sponge in that it does not absorb—or form rather—those fœtid fluids with which a sponge always seems to get charged when left long in the genital canals. The tangle-tent moreover, was more easy of introduction, because of its greater solidity and stiffness; and though sometimes he had found a little trouble in introducing it in consequence of its becoming slippery whenever it got moistened, yet then he had succeeded in passing it with the aid of a pair of long dressing-forceps, or, better still, of an old porte-aiguille. Then the greater abundance and consequent cheapness of the tangle presented an additional advantage; and if we wanted to be very economical, the same tent might be used a second time after being simply dried,—a process that would be attended with much danger if we had to do with a piece of sponge that had once been impregnated with deleterious discharges. The tangle did not dilate quite so rapidly, perhaps, as the sponge; but the expansion was effected with sufficient speed for all ordinary purposes. He showed a tangle-tent expanded to about the thickness of a little finger, which he had removed from a patient on his way to the meeting at eight o'clock, and which had been introduced in the forenoon. In its dry, undilated condition, it might have been about the thickness of crow-quill. On the whole, he thought that tangle-tents would come to replace the others in use, because they were,—1st, cheaper in price; 2d, more easy of introduction; 3d, more potent as dilators; and, 4th, cleanlier in their use.

Dr. KEILLER remarked that he had lately being using the

tangle-tents, and had found them answer the purpose admirably; he felt sure they would soon supersede the sponge-tents in common use. He found that after drying them they were useful a second time. There was a difficulty in introducing them, which he had endeavoured to overcome by the use of a pair of long curved forceps, upon which, however, he was making some improvements, and would exhibit them at the next meeting of the Society. He had used tangle before as bougies, but it did not occur to him to dry it for the purpose of re-expansion.

Dr. A. R. SIMPSON had found this kind of tents very apt to slip out. A piece of sponge placed below them held them in position till they began to dilate, but probably a piece of worsted wound round the point would be sufficient to overcome the difficulty.—*Edinburgh Medical Journal, July* 1864, *p.* 74.

105.—ON OVARIAN EXTIRPATIONS.

By Dr. CHARLES CLAY, Manchester.

[The following two cases are the 109th and 110th operations for the extirpation of diseased ovaries, and the 75th and 76th which have out of this number been successful.]

Case 109th.—Mrs. Meakin, of Burton-upon-Needham, Staffordshire, was sent to me in the autumn of 1863, labouring under ovarian disease of some standing. The abdomen was considerably larger than full-sized pregnancy, very tense, and of equal globose form, more fully prominent on the right side; fluctuation very distinct, and equal throughout the entire surface. I consequently concluded that there was but one large cyst, and in its present condition of tensity, it was impossible to decide as to whether it was accompanied by any solid matter or adhesions. I therefore declined to extirpate the tumour, until better satisfied of its real condition, which I could only ascertain by tapping the sac in the first place; and if, on its being emptied, any solid nucleus presented itself, I would proceed to extirpate the whole within two or three days of the time of tapping; but if no such solid mass appeared, I would then give the patient a chance of cure by the injection of tincture of iodine into the interior of the sac, and wait the result of the inflammation set up, with the view to obliterate the secreting surface of the sac; believing this case to be one of those that had a right to the chance of cure which injection afforded, before the question of extirpation could be justifiably entertained. I proceeded therefore to tap the sac, and removed about thirty pounds of thick, dark, viscid fluid, much coloured. On the sac being entirely emptied, I searched carefully for solid deposit, without finding any; and having been very careful in

the meantime that the canula of the trocar was kept well in the walls of the sac, I injected through it about four ounces of the strongest tincture of iodine of the Edinburgh Pharmacopœia, mixed with about as much water, and then closing the mouth of the canula with one hand, taking care the canula did not slip from the sac, with the other hand, by a sort of kneading process I pressed the parietes of the abdomen, so as to secure the probability of every portion of the interior part of the sac having been in contact with the fluid. The mouth of the canula was then opened, and as much of the fluid as would, allowed to escape; which was about half the amount injected in. This is usually the case, so much of it being retained in the walls of the sac. The colouring matter of the iodine had almost wholly disappeared, which is also usual. For the first twenty-four hours after tapping all was quiet, notwithstanding the large amount of tincture of iodine used, and which generally surprises my medical friends. On the evening of the second day, sharp shooting pains set in, accompanied by a tympanitic condition of the abdomen. I allowed these symptoms of inflammatory action to be fairly established before I interfered, and then by active and constant fomentations, first with greasy water, and afterwards with a little turpentine added, until the inflammation was fairly subdued without the aid either of leeches or lancet. The abdomen being now reduced to its natural condition, the inflammation which had been roused for a special purpose had fairly been established; it only remained to watch the result. I had some hope the case would do well, that is, that the sac secretion would be checked, and extirpation unnecessary: for on reference to my former operations of this nature I found I had injected five cases previously, four of which had completely succeeded, and showed no signs of return, although some years had now elapsed. One case, however, had failed, and afterwards had to submit to the operation of extirpation. This case of Mrs. Meakin was, as the following report will show, another case of failure; or as the following table will show, two cases of failure to four cases of cure by injection.

But to return to the case of Mrs. Meakin: she went home in high spirits, and for some time afterwards I heard most favourable accounts of her progress, gaining daily in flesh and strength; in fact, I flattered myself the injection would establish a cure. The cessation of the secretion, however, was of but short duration; the sac began to refill after a lapse of three weeks, and in November, 1863, she visited me, in Manchester, larger in dimensions than on her former visit. It was therefore evident that in this case, at least, there was no reliance whatever to be placed on injection; the extirpation of the tumour was therefore decided upon. Before proceeding further with this case, I

would remark that there is not nearly so much danger to be apprehended from tapping and injecting ovarian cysts with iodine tincture as is generally supposed (that is, if proper precautions be adopted), nor is the danger increased by using large quantities of the tincture, and which to many of my medical friends appears so hazardous. It must be borne in mind, that in many cases where this operation has proved fatal, it in all probability arises from the fact that the canula of the trocar has slipped out of the walls of the sac, and the iodine tincture has escaped into the peritoneal cavity, bringing on a more dangerous character of inflammation, and exposing the patient to the mischief of iodine absorption into the general system. But if care be taken that the canula be kept from being drawn forward, but rather pressed backwards towards the sac, so as to secure and maintain its position within the walls of the sac until the whole process of injecting is over, the danger will be comparatively trifling; in fact, the inflammation is, when properly managed, *confined* strictly to the inner surface of the wall of the sac, and is always easily subdued by active fomentations (rendered very hot and stimulating by the addition of turpentine), without requiring either leeches or lancet, both of which I studiously avoid. With regard to any danger from absorption of iodine, I consider such could only arise from carelessness, as I before stated, by the slipping of the canula out of the sac walls, and giving rise to peritoneal inflammation as well as to absorption of the tincture into the system, both of which will be easily avoided by confining the contact of the fluid to the interior of the sac only. When the slender connection of the pedicle of ovarian tumours is considered, and the entire absence of absorbent vessels in such tumours, I conceive it almost impossible that the patient should suffer from the effects of absorption of iodine, from the inner surface of the sac. It is, in fact, this want of absorbing power in these tumour masses, that renders the treatment of ovarian disease by medicine so thoroughly useless. From these remarks, it will be easily perceived why I venture to use such large quantities of iodine tincture for injection: First, because small quantities will fail to secure the object in view, either not rousing the inflammatory action at all, or, being in small quantity, the inner surface of the sac is not wholly covered, consequently the inflammation is only in patches, leaving other portions of the surface in an active state of secretion unchecked, therefore defeating the intention of cure. Secondly, because I have no fear of the effects of absorption into the system, believing this to be next to impossible if the fluid be kept from the peritoneal cavity, and into which it could only escape from carelessness. I may then lay it down as a rule, Better not inject at all, than do it

carelessly. I do not believe, however, under the best endeavours, that injection will always succeed, but it has succeeded in some cases, and I believe, may do so to about 70 per cent.; and if so, as it does no great harm even where it does not succeed, I think it is worthy of trial; but only in those cases where there is positive evidence of *one* large cyst, entirely free from any solid deposits; *then*, and *then only*, is it admissible, and in proper cases when carefully selected it may succeed. There is one more popular error to be exposed in the tapping of ovarian tumours, and that is the assertion that adhesions often occur where the trocar pierces the peritoneum and the sac: a more absurd idea could scarcely be entertained; a moment's reflection will expose the fallacy. The two points of puncture, first that in the peritoneum, and secondly that in the sac, are, when the sac is emptied and collapsed, *as far from each other as they can possibly be*, and cannot come in contact again until the sac has refilled to the same dimensions, and long after the process of inflammatory action from such punctures has subsided. In fact, adhesions do not arise from any such cause; at least, I cannot conceive such possible, nor have I seen such results in any of my operations. Adhesions arise from two inflamed surfaces being kept together for a time, that is, sac, or tumour surface, lying closely packed to the peritoneum. As a rule sacs are seldom adherent, and it is only those that come under the operation of tapping. Solid tumours are frequently adherent, and generally confined to those which have but little mobility. In consequence of the failure of injection, in the case of Mrs. Meakin, she visited me early in November last year, 1863, and was prepared for the extirpation of the sac. I operated on the 14th of November; the incision was about eight inches in length; some slight adhesions had to be contended with; the tumour with its contents about twenty-eight pounds; the incision closed by six interrupted sutures; and on the patient being put to bed, three grains of solid opium were given. During the first three days she was kept well under the influence of narcotics, but after the first day I substituted nepenthe for opium (a preparation of opium somewhat similar to the black drop). My reason for this was that it sat more quietly on the stomach, producing less nausea, and the sleep being less disturbed by dreams. The dose, from thirty-five to forty drops, was seldom followed by headache. I have since used this preparation extensively, and found it, I think, more decidedly effective than opium, and accompanied by less unpleasant effects afterwards.

On the third day a smart attack of peritoneal inflammation set in, and active fomentation was persevered with until inflammation was entirely subdued, without any depletion by leeches or lancet, neither of which have I ever used since I commenced

operating for these tumours in 1842. From the termination of the attack of inflammation to the thirteenth day, the progress of the case was most satisfactory; all the interrupted sutures were taken out on the fourth day, and the incision healed by the first intention; the pedicle ligature came off on the thirteenth day, the aperture closed immediately after, and on the 5th of December, twenty-one days from the date of the operation, she left Manchester for home, in the hope of enjoying her Christmas amongst her friends, and in which she was not disappointed. I have frequently heard from her since, to the effect that her health and strength gained ground daily, and that she proved a wonder to her friends, who had previously concluded her case to be hopeless. This patient is at present in the enjoyment of excellent health.

Case 110th.—Mrs. C., of Cheetham Hill, Manchester, aged twenty-nine, married; has had no children; consulted me in May, this year, having been advised by different medical men whom she had consulted, not to seek an operation. I found her very large, the abdomen tensely filled with a multilocular tumour springing from the right ovary; one third of the mass, situated on the right side, very solid, unyielding, and without fluctuation, whilst on the left there was a large cyst, pressing upwards very much against the stomach, and rendering it very uncomfortable; the liver suffered also from pressure of the solid mass on the right side. I pronounced the case in many respects a favourable one for the operation, but she resisted me two or three times, and consulted others before her mind was fully made up to meet it. On the 1st of July I visited her at her own home, and learning from me that tapping was not advisable as a curative measure, and could only be sanctioned on condition that extirpation must of necessity follow in two or three days after (the object being simply to reduce the size of the tumour and render the operation a little less formidable); in consequence of this announcement I tapped her on the 1st of July, the fluid drawn from the sac amounting to eighteen pounds, thus affording her considerable relief and enabling her to move about with greater activity; she enjoyed her food more, and the stomach was much less irritable. On the 5th of July, having removed her to her parents' house, nearer to me than her own residence, I operated in presence of Messrs. Edlin, Paton, and Walsh, surgeons; the length of the incision was about eleven inches, and through which with difficulty the solid mass was got away. As I had anticipated there were no adhesions, but the pedicle was very thick, involving the entire broad ligament. Under these circumstances (as I usually do), I pierced the broad ligament, and passing ligatures round each half, tied them separately. This mode of placing the ligature

on the pedicle has its advantage, from the fact of the ligature being thrown off much sooner and the recovery hastened; and again the system does not rally well towards improvement until the suppuration of the pedicle has ceased, and the ligature is thrown off. My pedicle ligature is always composed of three or four strands of Indian hemp. The abdominal incision was secured by nine silver sutures, and the patient placed comfortably in bed in fifteen minutes from commencing the operation, including the application of chloroform. The weight of the solid mass was sixteen and a half pounds, and with contents thirty-five pounds. Three grains of solid opium were given, and repeated occasionally, during the first three days, amounting to about fifteen grains. After that she had the nepenthe in doses of from thirty-five to forty drops. This narcotic influence was kept up for the first five days, more or less, according to circumstances. For the first three days the urine had to be drawn away by the catheter, after which it passed naturally. On the third day the silver sutures were all removed, and the large incision entirely closed, with the exception of the aperture through which the ligature passed. After the third day enemas of broth, with castor oil, were occasionally administered, with the double object of moving the bowels and affording some little temporary support to the system, at a time when the stomach was too irritable to retain food easily, except of the most simple kind, such as gum-water, toast-water, thin milk, &c. Up to the eve of the eleventh day there was not the least peritoneal excitement or tympanitic state of the abdomen; the progress of the case had up to this been most satisfactory. But the twelfth day was commenced with diarrhœa, attended with considerable griping and puffiness of the abdomen; in other words, although the case had escaped peritonitis (which is the general feature more or less), here for the first time in my connection with these operations the mucous membrane had taken on inflammatory action. This attack, however, gave way without much trouble to grain doses of opium every four or six hours, with active fomentations of turpentine and hot water.

I had some reason to suppose this excitement arose from the patient having taken some Dublin porter, but which was of course discontinued. On the 12th day the ligature of one half of the pedicle came off, the other followed in three or four days afterwards. My patient sat up on the fourteenth day, and began to take her food (with a relish) consisting chiefly of mutton chops, beef tea, &c.; and from this time her progress was rapid towards complete recovery. On the 3rd of August, or just four weeks from the operation, she left Manchester for the country, quite well. Thus successfully terminated my last or 110th operation. My general plan of treatment after opera-

tion, as well as the mode of operation, has been too often published previously to require repetition here; but I will in conclusion give the tabular results of all my abdominal operations for the last 22 years, that is from 1842 to 1864.

Cases from 1842 to 1864.	Number.	Recoveries.	Deaths.
Ovarian Extirpations	110	76	34
Cæsarian section	1	0	1
Entire removal of uterus and appendages, (being fibroids) through the parietes abdominales	3	1	2
Cutting down upon ovarian tumours (in cases of almost universal adhesions), to reduce their bulk from within, and setting up ulceration where removal was impossible	4	4	0
Cysts tapped and injected with tincture of iodine	6	4	Two filled again
Total Results	124	85	37

It will be here seen, that in my practice of twenty-two years, the recoveries in operations of ovariotomy alone, are about seventy per cent.—a result that I cannot but consider flattering. The reader will also observe, that during the above period I have extirpated three fibroid uteri with their appendages entire, through the abdominal parietes, as in ovariotomy. These I believe to be the first operations known of the kind. The first and second operations were in 1844, and the last in January, 1863, and reported in the London Obstetrical Society's Transactions, vol. v. I mention these particularly, because Professor Koeberl operated similarly on a fibroid uterus on April 20th, 1863, and stated his to be the first operation of the kind in the world; whereas my first and second operations were nineteen years, and my last some months, prior to his operation. The fibroid in my last case weighed eleven pounds.—*Glasgow Medical Journal, October* 1864, *p.* 257.

106.—ON THE DIAGNOSIS BETWEEN OVARIAN DROPSY AND ASCITES.

By SPENCER WELLS, Esq., Surgeon to the Samaritan Hospital.

During the past summer the question as to ascites, ovarian dropsy, or the co-existence of the two diseases, arose in several cases; and we are indebted to Mr. Spencer Wells for the following practical remarks upon the means of recognising each of these forms of disease:—

Our senses of sight, touch, and hearing are all required to assist us in distinguishing ascites from ovarian dropsy, the

physical diagnosis being established—1, by inspection and measurement; 2, by palpation; and 3, by percussion and auscultation.

I.—On *inspection*, the *size* of the abdomen is seen to be increased both in ascites and in ovarian dropsy; and, when an ovarian cyst is large, the abdominal enlargement is general; as it is in ascites. But while the cyst is of moderate size, the abdominal enlargement is often partial, more to one side than the other, more below the umbilicus than above. In *form*, the flanks and sides of the abdomen protrude in ascites, the front not being more convex than in the natural state, or it may be flattened; while in ovarian disease the bulging is generally most evident in front, less so at the sides, and often more on one side than the other. When the different portions of a multilocular cyst can be seen, of course all doubt is dispelled, but these remarks apply to simple cysts only. Alterations in position generally produce a greater and more immediate change in the form of the abdomen in ascites than in ovarian disease, the free fluid gravitating much more readily than a cyst can move. The normal depression of the *umbilicus* is altered whenever the general abdominal enlargement is considerable both in ascites and ovarian dropsy; but in the latter disease, although it may be flattened as in pregnancy, it is never prominent and bulging as it very often is in ascites, or when ascitic fluid surrounds an ovarian tumour. The *superficial veins* may be enlarged from the lower part of the abdomen to the chest on one or both sides in either disease. This appearance only assists in diagnosis when the enlargement is much more evident on one side than the other. Such undue importance has been given to enlargement of the superficial abdominal veins as a distinction between ascites and ovarian dropsy, and between simple and malignant tumours within the abdomen, that the following facts should be recollected :—

Congestion of the epigastric veins, when seen merely as a fine network of capillary veins, is usually a simple result of absorption of the cutaneous fat, the vessels becoming visible through the thin and distended skin, and of no diagnostic value. When some of the larger veins, distended or varicose, are seen to run from the inguinal region upwards, and either cease abruptly in the middle of the abdomen, or run to the hypochondriac region, or even up to the clavicles anastomosing with branches of the mammary and intercostal veins, the impediment to the circulation may be of several kinds.

It will be remembered that the epigastric veins are part of the system of the inferior cava. They are usually very small. They begin in the subcutaneous cellular tissue by small radicles, which unite on each side of the body to form two branches—one,

small and internal, runs up on each side of the middle line—one larger and external, can be traced upwards to the side of the thorax and to the axillary vein. These two branches unite on each side close to Poupart's ligament, and open into the internal saphena vein at the spot where this vein and the femoral vein unite. The superficial fascia lies between these veins and the recti muscles.

The causes of stagnation or retardation of blood in the epigastric veins are—

1. In the *heart* itself, impeding the return of blood from the cava.

2. In the *trunk* of the inferior cava—(*a*) tumours pressing the vein towards the vertebral column; (*b*) coagula within the vein; (*c*) extension of cancer to the vein. The varicosity of the veins of the lower extremity is often prevented by a free collateral circulation being set up by dilatation of the vena azygos.

3. In the larger *branches* of the inferior cava—(*a*) pressure of tumours, Cruvelhier has seen both iliacs obliterated by the pressure of an ovarian tumour, and the epigastric veins dilated to the thickness of a goose-quill running to the axillæ. (*b*) Coagula; (*c*) pregnancy.

4. In the *Portal System.* As the hemorrhoidal branches of the inferior mesenteric vein (one of the veins forming the portal system) unite in the hemorrhoidal plexus with the hemorrhoidal veins which run into the internal iliac vein, there is a free communication between the portal and general venous systems. By throwing injections either into the vena porta or the pelvic veins, Cruvelhier has proved that the pelvic, hemorrhoidal, internal pudic, obturator, and gluteal veins anastomose very freely. So that mesenteric and other tumours, which may, perhaps, not cause direct pressure on the cava, may lead to dilatation of the epigastric veins secondarily, by their effect on the vena porta or its branches, just as any disease of the liver which leads to impeded portal circulation may have the same effect.

When the integuments are œdematous, the lineæ albicantes become more prominent than the neighbouring portions of skin, and have a knotty appearance, which has led to the mistaken appellation of *varicose lymphatics.* Nearly all the cases in which I have observed this appearance have been cases of tumour surrounded by ascitic fluid. The *movement* on respiration is defective, both as regards the soft wall of the abdomen and the lower ribs; while the respiratory movements of the upper ribs are exaggerated in both diseases. The alteration in movement only assists in diagnosis when it is partial or affects only one side. On making deep inspirations the upper part of an ovarian cyst may often be seen to rise and fall. This appearance is very characteristic. In ascites it may be simulated by some distended coils

of intestine moving with the diaphragm; but the resonance of the intestine on percussion instantly settles all doubt on this point.

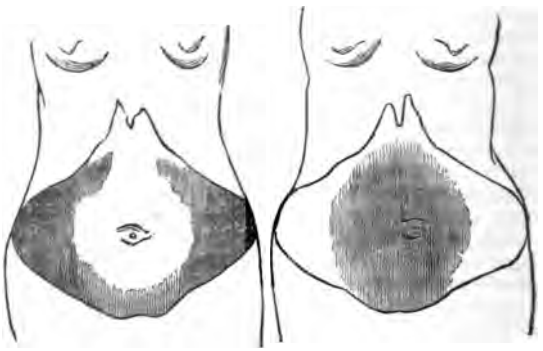
On *measurement*, the enlargement of the abdomen in ordinary ascites is equal on both sides, or symmetrical; and, although the distance from the sternum to the pubes is increased, the umbilicus retains its normal position—about an inch nearer to the pubes than to the sternum—and is about on a level with the highest point of the crest of the ilium on each side and midway between these two points. In ovarian dropsy there is often a considerable alteration in the measurements between the umbilicus and sternum, and umbilicus and pubes, as well as between the umbilicus and the two cristæ ilii. In ascites the greatest circular measurement is at the level of the umbilicus; in ovarian dropsy it is often some inches below that level.

II.—On *palpation*, the abdominal wall is felt to be harder and more resistant than natural in both diseases in the parts where much fluid is present, but is soft and elastic in other parts. Consequently the variation in the seat of hardness with the position of the patient becomes useful in diagnosis, the fluid in ascites gravitating freely to the most dependent part. *Fluctuation* is perceived with varying distinctness according to the degree of tension of the abdominal wall, to the thickness of the layer of fat, to the amount of œdema, to the thickness of the peritoneum or of the cyst, to the quantity and character of the fluid, and to the amount of tympanitic distension of the intestines. In itself, it offers no assistance in diagnosis, because a thin-walled ovarian cyst, filled with limpid fluid, with a moderately tense and thin abominal wall, would give a more quick and decided wave than a moderate quantity of ascitic fluid beneath an abdominal wall thickened by fat or subcutaneous œdema. The characteristic peculiarity of the fluctuation in ascites is that it varies with the position of the patient, and is only perceived in the parts where the fluid gravitates towards the abdominal wall; while in ovarian dropsy its situation does not vary with position, but is perceived wherever fluid is to be discovered by

III.—*Percussion.*

The two following diagrams represent the situation of clear and dull sounds obtained by percussion in typical cases of ascites and ovarian disease, the patient lying flat and evenly on her back. The dark parts of the abdomen are dull, the rest clear. In ascites the stomach and intestines are above and in front; the fluid behind and on either side. In ovarian dropsy the fluid is in front, extending in different degrees to either side, and pushing the stomach and intestines upwards and backwards, just as a gravid uterus does. The figure to the right,

indeed, would represent either a gravid uterus near the full period of pregnancy, or an ovarian cyst of about the size of such a uterus, and situated centrally, as ovarian cysts often are at this or rather a later period of their growth. But quite as frequently they tend towards one side or the other, in such cases the diagnosis being, of course, easier.



It is seldom that a patient with ascites lies so flat as not to raise the shoulders enough to throw a layer of fluid downwards towards the pubes. Very often the dulness may extend as high as the umbilicus, and generally does so when the shoulders are much raised by pillows. This might lead a superficial observer to suppose that the disease was ovarian, because there was a dull sound in the front of the abdomen; but on lowering the shoulders, and placing a pillow or hassock under the hips, the fluid at once gravitates towards the diaphragm, the intestines float to the surface, and a clear sound is obtained when it was dull before. No such alteration in the position in the situation of dulness can possibly occur in ovarian disease. So on turning from side to side, the fluid gravitates to the side which is low, and the intestines rise to the upper side, with corresponding changes in the situation of dull and clear sounds on percussion. No such alteration can occur in ovarian disease. Again, at any spot near the level where the resonance of the intestines ends, and the dulness of the fluid begins, and a dull sound is elicited by *gentle* pressure and percussion, a *deeper* pressure will displace the fluid, and the resonance of the intestines will be again heard. At the most depending spots the amount of pressure necessary to obtain a clear sound is some guide to the estimation of the thickness of the layer of fluid. No such difference in the sounds from superficial and deep percussion can occur in ovarian

disease. It has been supposed that percussion on the loins is a very sure guide in diagnosis,—that when the patient is sitting up and one loin is clear and the other dull the disease is ovarian, but that when the sounds are the same on both sides it is ascites. One dull side is also supposed to be a proof that the ovary of that side is the one diseased. But there are so many exceptions to these rules that they are of no great value, except as corroborating or counterbalancing other physical signs. Auscultation affords little information, but it shows the presence of the gurgling sounds of the intestines in the spots clear on percussion, and the absence of these sounds in the dull spots, except on deep pressure by the stethoscope. In both diseases the fluctuation wave of fluid may be heard as well as felt.

By applying these general rules in any ordinary case, a few seconds will enable the Surgeon to clear up all doubt. But there are various conditions which may lead to the necessity for further examination. The fluid in the peritoneal cavity may be so large in quantity that the front of the abdomen is pushed far beyond the reach of the intestines. They float as far as the mesentery will allow them, but cannot reach the surface of the abdominal wall. In this case percussion must give a dull note in front just as it does in ovarian dropsy. So when the intestines are fixed in the back part of the abdomen by adhesions, or by a thickened omentum, the fluid is circumscribed in front as in ovarian dropsy. Or an ovarian cyst may contain air, either from a perforating communication with intestine, or after tapping and decomposition of fluid, in this case percussion giving a clear note in front or above, and a dull note behind or below as it does in ascites. In these cases physical diagnosis alone cannot solve the doubt, and we have to consider all that can be learned from the history of the case and the general condition of the patient. So, when fluid is free in the peritoneal cavity we must resort to tapping and chemical or microscopical investigation before we can decide whether the fluid is the ordinary non-inflammatory serum which transudes into the cavity in cases of heart, liver, or kidney disease, or the inflammatory exudation of chronic peritonitis in its simple or its tubercular form, or whether it may be ovarian fluid which has escaped from a perforated or ruptured cyst. And when ascitic fluid surrounds a tumour which can be felt either by deep pressure or after tapping, we have to determine whether this tumour is ovarian or uterine, or some form of intra-abdominal cancer, or some hydatid tumour of peritoneum, omentum, or liver; or some tumour of liver, kidneys, or pancreas; or some retro-peritoneal tumour—aneurism, enlarged mesenteric or lumbar glands, enchondroma, cancer of vertebræ, and so on. But these are all beyond the scope of remarks upon the physical diagnosis

between ordinary ascites and a simple ovarian cyst of large size. —*Medical Times and Gazette, Sept.* 24, 1864, *p.* 327.

107.—PRACTICAL DETAILS IN OVARIOTOMY.

By T. Spencer Wells, Esq., London.

[This short article is elicited by one from Mr. Furneaux Jordan. Mr. Wells has now discontinued the use of hare-lip pins, as it was impossible by them to bring the opposite divided surfaces evenly into apposition.]

I began to use wire sutures of different kinds—silver, platinum, and iron—as well as catgut, horsehair, india-rubber, and gutta-percha; but I found nothing answer so well as fine, strong, pure silk. It is easily applied, easily removed, and, if not drawn too tight nor left too long, causes no sloughing of the circle of tissue which it encloses. I seldom leave the sutures more than forty-eight hours, and often remove them at thirty-six or forty. Dr. Keith, of Edinburgh, has recorded one case in the Edinburgh Journal for October 1863, which so strikingly shows one of the great advantages of silk over wire, that I make no apology for asking you for space for his account of the *post mortem* examination. He says:

"On carefully examining the line of incision, which had been secured by seven wire sutures passed through the whole thickness of the abdominal wall, including nearly half an inch of peritoneum, it was observed that the peritoneal line of union was so uniformly perfect that it was impossible to tell where the line of incision had been. The wires were felt under the peritoneal surface; and on cutting one of these from the outside, in order to see how the cut extremity of the wire would behave when passing over this freshly united serous surface, I was surprised to find, though it was withdrawn with the utmost gentleness, and the point kept as much as possible against the upper surface of the wall, that the *point of the wire tore the peritoneal membrane right across*, leaving it ragged, and allowing a *drop of matter* which lay along the track of the wire to *appear on the peritoneal surface.*"

It is the fashion to sneer at "petty details"; but a fact like this shows that it may be of immense importance to a patient whether her wound has been closed by wire or by silk.

The question, "what to do with a short pedicle," is one of the most important which can engage our attention; but it can only be determined by the experience of a large number of cases accurately observed and faithfully recorded.—*British Medical Journal, June* 18, 1864, *p.* 676.

108.—ON THE USE OF CERE CLOTHS IN THE TREATMENT OF PAINFUL AFFECTIONS OF THE FEMALE BREAST.

By Dr. HARDY, Dublin.

I mentioned having applied cere cloths to relieve the distension of the breasts in one of the cases detailed in the foregoing paper. Made as they usually are, of bees-wax and sweet oil, spread on linen, they are ill suited for the purpose for which they are intended; they become very brittle and crumble about the patient's bed. In preparing them if a little glycerine and resin plaster be added to those ingredients, and spread on thin leather instead of linen, they can be removed and reapplied without any inconvenience.

℞. Cer. flav.; ol. oliv. aa. ʒii.; glycerine ʒii.; emp. resin, ʒss.—M. ft. emplast.

Cere cloth with Belladonna:
To the above add emp. belladon. ʒss.
Cere cloth with Opium:
To the cere cloth plaster add emp. opii. ʒss.

By spreading over the surface occasionally, glycerine diluted with tepid water, this application may be made to answer the purpose of a perpetual vapour bath on the breast, and thus prevent the often injurious handling and rubbing which it is frequently subjected to from the nurse, or save the risk of cold in fomenting.

By saying so I do not mean to detract from the very beneficial effects of both hand rubbing and fomentations, when properly applied. It is their injudicious and wrong application which I condemn.

Cere cloths are very soothing in painful affections of the breasts of very young infants. I lately applied them in a case of inflammation and enlargement, where the child was about a fortnight old; both breasts were greatly distended. The nurse, when showing them to me, said she had not squeezed them until she first let me see them. No other means were resorted to, and in a few days the disease was quite removed.

In painful and irritable conditions of the breast, either on the setting in of lactation or owing to disease, the addition of extract of belladonna is sometimes most beneficial. It may be spread over cere cloths made as I have described, and in this way be rendered more efficacious; as then it will be prevented from drying on the surface. In two cases particularly I found the application of belladonna most valuable.

In March, 1852, I attended a lady in her first confinement; she was remarkably healthy, and had a good labour. Her breasts were well formed, the nipples very good, and without any trace

of tenderness on the surface; but so exceedingly sensitive that the least touch, in endeavouring to nurse her infant, was intolerable.

The extract of belladonna was smeared over her breasts outside the margin of the areola; one application left on for a short time (less than an hour) removed every trace of irritation. She has given birth to several children since then, and never again had any such annoyance.

I took the precaution, which is very necessary in all such cases, of strictly removing the infant from its mother until after the belladonna had been some time very carefully washed of the breasts.

The second case was a lady who was confined of her first child in November, 1856. During her labour, until she inhaled chloroform, she was most violent. She then became so quiet, her husband, wondering at the sudden return of peace, looked into the room. On perceiving him she said:—"Dick, I don't mind it now, I have the chloroform."

On her breasts becoming distended at the commencing of lactation she suffered such intense pain that I was sent for during the night. She was in a great state of excitement.

In addition to internal remedies I smeared her breasts freely with extract of belladonna.

Next morning I found her perfectly tranquil. She said (pointing to her breasts):—"Here they are, like two stones; but not in the least painful;" nor were they from that time. This lady and her sister had the same peculiarities; their breasts became intensely hard, but without any secretion of milk whatever. Neither of them could nurse.

The greatest degree of this peculiar sensitiveness I ever met with was in vaccinating two gentlemen, brothers, both strong healthy men. Neither of them could bear the least touch of the lancet without exclaiming. One of them in particular became deathly pale; the perspiration poured down his face, and he had to be laid fainting on a sofa. Wine and smelling salts were freely used before I could complete the operation, which occupied not less than twenty minutes.

It was only necessary to scratch the skin lightly with the nail to cause the same effect as that excited by the lancet.—*Dublin Quarterly Journal, Aug.* 1864, *p.* 217.

109.—ON THE EMPLOYMENT OF APIOL IN AMENORRHŒA AND DYSMENORRHŒA.

By Dr. CORLIEU.

[Apiol is the active principle of parsley. A work has been lately published by Dr. Marrote of the Hospital La Pitié, on

the utility of this principle. Dr. Corlieu has now employed it for eight years, and in this paper points out the cases in which it may be expected to prove useful.]

A. In all cases where the menstrual disorder depends upon the derangement of a vital element, where there is plethora or anæmia, apiol should not be used, for, being a nervous tonic, it will only aggravate the condition of the patient. But if the condition of chlorosis be removed, apiol may be prescribed with a good prospect of success. The following case will illustrate this:—A lady, thirty-eight years of age, of a lymphatic and nervous temperament, had suffered for three months from amenorrhœa, complicated with extreme chlorosis. Dr. Galligo at first ordered apiol, but without success. At a later period he combined it with chalybeates, which had previously done no good. The combined use of iron and apiol effected a cure. Dr. Marrote relates the following case:—Miss C. eighteen years old, was of a lymphatic temperament. In childhood she had had measles, hooping-cough, and modified smallpox. Her skin was of a dead white, her face somewhat swelled; the gums were swelled and discoloured; she had very little appetite, and often vomited her food. She menstruated first when fourteen years old; for several months the discharge was white, afterwards it became of a reddish colour, but was accompanied by such severe uterine pains, that she was obliged to keep her bed. As she was to menstruate on the 18th of October, I ordered her two capsules of apiol on the 15th, two on the 16th, and two on the 17th. On the 18th, the menses appeared, though still in small quantity, but unaccompanied by colics or uterine pains; they only lasted two days, and the blood was still very pale. On the 21st, I ordered a chalybeate which was continued till the 18th of November, when she resumed the apiol for three days. The menstruation was unaccompanied by pains; it continued three days, and the discharge was more coloured and more abundant.

B. When the menstrual disorder depends upon a diathetic condition (dartres, scrofula, &c.), we must, by means of a specific treatment, such as bitters, cod liver oil, preparations of iodine, sulphur, or arsenic, attack the principal malady. Apiol is of no use at first in these cases; but when the cure of the morbid diathesis has been effected, it may be employed with advantage in stimulating the torpid menstrual function.

C. But it is chiefly in disorders which are under the influence of the nervous system that apiol is a heroic remedy, leaving far behind it all the emmenagogues hitherto employed. As a neurotonic it supplies to the nervous system the energy it has lost. Change of life, of habits, or of climate, often determine

amenorrhœa. This is a fact which must not be forgotten, and which is well known to the physicians of boarding-schools and religious houses. This menstrual suppression is transitory; it lasts some months, and sometimes only gives rise to slight nervous disorders, or a slight oddity of character. In these cases, two, four, or at most six capsules of apiol will restore the menstrual flux. The following case was observed by Dr. Marrote :—

Miss L. J., seventeen years of age, born in London, arrived for the first time in Paris in October 1861. She was a tall, handsome girl, of good constitution and plethoric temperament; she had never had any serious illness. She menstruated for the first time at thirteen, but was very irregular up to fifteen. Although she never suffered from colics, or lumbar or inguinal pains, her periods were often delayed for a fortnight or three weeks; the blood, containing fibrin, was pretty abundant. From fifteen to seventeen years, menstruation was quite regular. She then came to Paris to complete her education. From the date of her arrival until the month of March of the following year, her menstruation was completely absent. Nevertheless, no change had been observed in her general health, though I was informed that at times she became duller, more melancholy, and more irritable than usual, and that this state continued for a short time. Taking this as an indication, I administered apiol in the dose of one capsule night and morning in a spoonful of water, beginning on the 11th of March, which seemed to be indicated as a menstrual period. She thus took six capsules in three days. On the 14th of March, the menses appeared without pain, and lasted four days. The lady of the establishment, accustomed to see apiol almost always succeeded under these circumstances, did not repeat it the following month. On the 14th of April, the menses returned, and lasted four days. On the 17th of May, the 16th of June, and the 21st July, the same occurred. Miss L. J. returned to her family in London in perfect health and quite regular.

The sudden application of cold during a menstrual period may suppress the discharge abruptly, and give rise to amenorrhœa, which may last for an indefinite time. In the month of January 1861, I saw a young lady, seventeen years of age, who had menstrated for two years, but in whom, in consequence of a chill during menstruation, the flow was suppressed. The belly became considerably enlarged; there was, in fact, an ascites, which could only be explained by the amenorrhœa. There was no albumen in the urine. I employed, without success, purgatives, sudorifics, chalybeates, and the ordinary emmenagogues. There was considerable pain at what should have been the menstrual periods. This state continued until the end

of April. In May, capsules of apiol given night and morning restored the discharge, though at first it was pale and serous. Iron was continued, and from that time the abdomen diminished in size. The cure was complete.

It would be easy to bring forward more cases, but the above may suffice. The point I wish to establish is, that apiol is the best emmenagogue with which we are acquainted in all cases where amenorrhœa or dysmenorrhœa have their origin in a disturbance of the nervous element. The principal condition for success in the use of apiol is in the choice of the proper moment for its administration. In almost all cases of amenorrhœa or dysmenorrhœa which depend upon an organic cause, the use of apiol is contraindicated. This is not the place to lay down the diffirential diagnosis of these conditions. If apiol has succeeded in some cases of plethora, it has been because the plethora was not very considerable. "In order," says Dr. Marotte, "that apiol may succeed, it is an essential condition that the pain which accompanies menstruation depend upon dysmenorrhœa, properly so called, that is, on the vaso-motor innervation of the womb. It has never succeeded in calming nervous pains, dull or acute, which were seated in branches of the lumbo-sacral nerves, and especially in the uterus, pains which appear or become exaggerated at the menstrual period, and may, at first sight simulate dysmenorrhœa proper." Another condition for success in the use of apiol consists in choosing a time for its administration corresponding to a menstrual period. If the woman has not properly calculated the period, we may be enabled to discover it by noticing the sympathetic derangements which occur under these circumstances.—*Gazette des Hôpitaux.*—*Edinburgh Med. Journal, August* 1864, *p.* 164.

110.—ON THE INTERNAL EMPLOYMENT OF ESSENCE OF TURPENTINE IN THE HEAD-ACHES OF NERVOUS WOMEN.

By Professor Teissier, of Lyons.

M. Teissier thus describes the kind of cases of nervous headache in which he has found the essence of turpentine to be beneficial. The affection, he says, is a common, but often very severe one, and should not be confounded with ordinary neuralgia, either periodic or irregular, of the face or cranium, or even with hemicrania. This cephalæa is characterized by a much more fixed and continuous pain in the head, and may last not only several weeks, but months, and entire years, without presenting more than rare and slight intermissions. The pain is sometimes dull, sometimes shooting, and sometimes pulsative, occupying only a single point of the head or the whole

of the cranium, being accompanied by nausea or even vomiting, and complicated besides with much more serious symptoms, such as vertigo and tendency to syncope, inability to think or to work, despondency, weariness of life, and sometimes numbness in the limbs. It is especially observed in nervous women, with exalted sensibility, of a delicate constitution, somewhat anæmic, and especially hysterical. It often co-exists with dysmenorrhœa, amenorrhœa, and also with a tendency to excessive menstruation, although it is sometimes observed in persons of good constitution whose menses are regular. M. Teissier observes that many remedies already exist which are efficacious in this complaint, such as valerian, assafœtida, the ethers, cyanide of potassium, aconite, &c.; and more particularly those which improve the blood, as chalybeate medicines, and different mineral waters. But these means sometimes fail, and then the essence of turpentine may be employed with advantage; although M. Teissier does not assert that it is infallible in its operation. It has been employed in the same kind of cases by Dr. Graves and by Trousseau; bnt M. Teissier does not think it necessary to prescribe it in such large doses as those physicians have done. He recommends its use in capsules, given at meal-times, each capsule containing eight drops of the essence.—*British and Foreign Medico-Chirurgical Review, July* 1864, *p.* 245.

111.—ON THE CLINICAL EXAMINATION AND DIAGNOSIS OF A TUMOUR OF THE BREAST.

By Thomas Bryant, Esq., Assistant-Surgeon to Guy's Hospital.

In examining a breast, with diagnostic intentions, the surgeon should take the whole gland in his hand; he should manipulate it gently and in every part with his fingers and thumb; and by these means he will, if an isolated tumour is to be found, in all probability detect its presence; if, however, he be uncertain upon this point, he should make the patient lie down, and if a new growth then really exists he will at once discover it. "If a patient be sitting or standing, and the breast is grasped by the finger and thumb, when induration of the gland itself exists, a sensation is felt as if a tumour were present. If, now, the palmar surface of the fingers be pressed flatly against the chest in the same part, nothing remarkable is distinguishable. If a tumour or new growth exists, however, it is immediately perceptible. But if any doubt arise in the matter, the patient should recline when under examination; and then, if there be a tumour, it is immediately manifest to the touch, and often to the eye."

Having, then, detected the presence of a tumour, that is an

independent growth, developed in the neighbourhood of the breast-gland, and probably in connection with it, the question arises as to its nature. Is it a simple tumour, or is it a malignant one?

If the tumour be moveable and hard—if it be quite free, or if it has but a very uncertain connection with the gland structure—there is a strong probability that the tumour is of a simple nature; and, if it has existed for several months, this probability becomes stronger, for it is an early characteristic of the *cancerous* tumour, even when primarily developed as a tuber, or as an independent structure, to associate itself and to become connected with the neighbouring tissues; and if this has not taken place, the absence of these conditions enhances the probability of the simple nature of the growth under examination. If the patient be also young and healthy, and if no other abnormal conditions, either of the breast or neighbouring structures, are to be detected, the probability becomes a certainty, and the presence of an "adenocele" may be determined on.

For these *adenoceles*, as a rule, appear in the young and unmarried; in the comparatively healthy and robust. They appear during that period of life when the procreative organs, and amongst them the mammary glands, are in a state of "developmental perfection;" and when attacking the married woman, they most frequently are developed during pregnancy or suckling. They are never associated with any other symptoms than such as can be produced mechanically by their presence, they never involve the integument except by distension, and the skin is never infiltrated by any new material. They are never accompanied by any secondary enlargement of the absorbent glands, nor associated with any secondary deposits; they never cause any cachexia nor undermine the health of their possessor, they affect the patient solely through local influences, and demand treatment chiefly from local considerations.

For although the breast itself may be much pressed on, or even expanded over the tumour, it will still exist, and on careful examination its presence, as a rule, will be made out. The nipple, although flattened from the extreme glandular expansion, can still be seen, but it is hardly ever retracted. The integuments may be stretched to an extreme point, yet they will still be moveable and sound, although some inflammation from over-distension may have made its appearance, and large veins are always to be observed meandering in the healthy tissue. The tumour, if solid, may appear lobulated, and, if containing cysts, fluctuation may be detected. Still, the disease is essentially a local one, and affects the patient through purely local considerations.

The Diagnosis of a Tumour which is evidently caused by some

partial or general Enlargement or Infiltration of the Mammary Gland.—Let us suppose, however, that the surgeon has a case of disease of the breast before him in which the structure of the gland is itself involved; that there is no independent moveable tumour, such as we have been considering; but that it is evident on manipulation that the malady, whatever it may be, is intimately connected with the gland structure.

What is the case? Have we an inflammatory affection only of the organ, or have we some simple hypertrophy or innocent enlargement? Is it a simple disease, or is it a malignant one?

If the manipular indications of the mammary gland are those only of enlargement, is such a condition due to pregnancy, or is it the product of a simple hypertrophy, confining the meaning of that term to an excess of growth?

If the increase be due to hypertrophy, which, by-the-bye, is an exceedingly rare condition, this has been to a certainty of a chronic nature, its increase has been slow and its growth painless; it is simply characterised by an increase in size, and beyond that can hardly be regarded as a disease; there is certainly no increase in action beyond that which growth demands.

[When due to pregnancy there need be little difficulty in the diagnosis. There will be a general fulness of the gland, and a darkening of the areola, and moreover both glands will be similarly affected. Sometimes a mammary enlargement may be explained by an inflammatory condition—not acute—but very chronic in its nature and leading to effusion in the structure of the gland.]

In certain patients—that is, in the middle-aged—when cancerous affections are to be looked for, the presence of an indurated mammary gland, whether it be partial or complete, must always be regarded with suspicion, and in certain cases I believe it to be an impossibility to form any certain opinion as to its true nature. If the induration of the gland be the only symptom, and this induration be associated with a sharp pain, or even a dull one, either a simple chronic inflammation of the gland may be indicated, or the early condition of a cancer; under such circumstances it is as well to wait before giving any positive opinion; if, however, much time has already passed, say many months, and no other symptoms have made their appearance, there is some good ground for the hope that the enlargement may be due to inflammation, for infiltrating cancers are not generally inactive—as a rule, are not stationary—and soon give rise to other symptoms, such as some enlargement of the absorbent glands, although this may be slight, some slight dimpling or drawing in of the skin, an important sign; or some more marked symptom, such as infiltration of the integu-

ment. A retracted nipple is also a frequent accompaniment of a cancer, but this is only an accidental symptom, such as may be caused by several conditions, and is not by any means characteristic.

If, however, any one or all of these symptoms show themselves soon after the first appearance of the lobular enlargement of the mammary gland, an opinion as to the cancerous nature of the growth may be confidently expressed. If, on the other hand, none of these symptoms make their appearance, and the induration or infiltration of the lobes of the gland remain stationary, or show some tendency towards improvement, the probability of the simple character of the disease gains ground.

On the Development of Cysts in Tumours of the Breast.—In practice, may examples of tumours of the breast come under the observation of the surgeon, the diagnosis of which is much obscured by the presence of cysts, or rather what Mr. Birkett describes as capsules, containing fluid of divers characters; for the development of a cyst in the majority of tumours is a mere accident; it is not a new development, such as the more solid portion of the tumour, nor is it in any way to be compared with the simple cystic formations which are found in the neck or other portions of the body; it is to be looked upon as a collection of fluid, probably serum, more or less blood-stained, and it is by its gradual accumulation that the more solid growths are separated, and an apparent cyst is formed. But this cyst is only spurious, for it has no special structure, its artificial walls being made up of condensed cellular tissue.

The existence, therefore, of false cysts, such as I have briefly sketched, in any of the breast tumours, whether adenoid or malignant, is to be regarded as a mere accident, for accumulations of serum are found to take place in any new growth, and thus may give rise to the cystic tumour.

The presence, therefore, of cysts in a mammary tumour has no weight in determining either the innocency or the malignant nature of the growth under examination; they are the product of a mechanical cause, and may consequently occur in either form; they are not special growths, nor are they of any intrinsic importance. The diagnosis of the tumour containing such cysts rests on other points, and more particularly on such as have been already indicated. As a rule, however, these so-called cysts are found in the less firm and solid forms of tumour, in those that contain less cellular or connective tissue, and in the more rapid developments rather than in the slow.

When found in the *adenocele or innocent growth* the tumour will be more or less solid, but in the parts in which the false cysts or capsules exist the growth will be more lobulated and loosely connected; loose pedunculated growths will, in some instances,

be seen lying within these capsules, their floating extremities being bathed with the so-called cyst contents; the different forms assumed by these tumours depending upon the amount of connective tissue which binds together the several lobes and lobules, and the dimensions of the interspaces which go to form the false cysts.

When these cysts are present in the *malignant tumour* they are produced in precisely the same way as in the innocent; but as the formation of the former differs from that of the latter, the cystic contents will vary also, the false cysts in the one instance containing the more or less solid characteristic lobules of the adenoid growth, whilst in the other case they are filled with the less developed and more irregular, but equally characteristic, material which goes to build up the cancerous tumour.

On the Diagnosis of the "True Cystic Adenocele" of the Breast.—The remarks I have just made respecting the importance of cysts in the innocent and malignant tumours of the breast are not applicable to every case; for to this rule, as to others, there is an exception, and in the present subject the exception is to be found in that form of cystic disease of the mammary gland which differs from the other forms of adenoid or new growth—developed independently of, although allied to, the breast-gland itself, such as those already dwelt upon—for it is essentially a cystic disease of the gland itself, and is more particularly connected with its secreting ducts It is, however, of an innocent nature, and pathologically is allied to the genuine adenocele; it is the tumour originally described by Sir B. Brodie as "arising by a dilatation of portions of some of the lactiferous tubes," or by Mr. Birkett as "Cystoid formations, distinctly referable to the dilatation of a duct, or to a connection with one, and containing growths which appear to spring from their walls." These growths are strictly analogous in their structure to the pedunculated or floating bodies which have been observed in the other forms of adenocele; containing, like them, a structure allied to the breast-tissue, and being composed of more or less distinct cæcal terminations of newly developed ducts, with variable quantities of true connective tissue.

How, then, is such a tumour to be made out? and what are the special symptoms which characterise it from the other forms of mammary tumour?

First of all, it is to be looked upon as an innocent tumour, and, consequently, it will be found to affect the patient precisely in the same way as all other adenoid tumours, in a purely local manner. It is to be regarded as a local disease, which at no period of its growth and in no way affects the patient otherwise than through local causes; it is never associated with secondary glandular enlargements or with secondary deposits in other tis-

sue, as in the cancerous tumour, and we must therefore look to local symptoms to guide us in the formation of a correct diagnosis.

It is to be remembered that it is a *genuine cystic disease.* The tumour is always made up of cysts, possessing solid contents in different degrees; but the existence of cysts is uniform and characteristic; *it is also a disease of the gland itself.* Unlike the other forms of adenocele, whether cystic or solid, it is a new growth, developed and growing independently of the mammary gland, although in some instances having a slight connection with it; but it is a true cystic adenoid disease of the mammary gland, dependent upon the dilatation of its ducts; and has, therefore, in the majority, if not in all cases, some communication through the nipple with the external surface. As a result, this condition gives rise to a symptom which, when present, must always materially tend to confirm the impression which may have been formed by the careful observation of the case, and by the presence of those conditions to which attention has just been drawn, and that is, the power the surgeon has to evacuate some of the contents of the cyst or obstructed ducts through the nipple of the organ by gradual pressure.

A cystic tumour of the breast-gland, in a healthy woman, unattended by any other than local symptoms, and accompanied with the discharge of a clear or coloured viscid secretion from the nipple, which can be induced or materially increased by pressure, may with considerable confidence be set down as the form of disease we are now considering, and may with justice be described as the *true cystic adenocele* of the mammary gland, in contradistinction to the false adenoceles or other tumours, which have but little, if any, connection with the true gland-tissue, but which are new growths partaking of the nature of the breast-gland, according to the pathological law, which appears universal, that all new growths partake of the nature and peculiarities of the structure in which they are developed.

On the Open, Ulcerating, and Discharging Tumour of the Breast.—There is a period in the growth of any tumour situated in the mammary gland, or in its neighbourhood, when the integuments become so involved as to ulcerate or give away, and when a discharging surface or cavity exists which presents an aspect differing according to the innocency or malignancy of the growth with which it is connected. In the cancerous tumour it is almost needless to add that the open surface or discharging orifice will be distinctly cancerous; the integument itself or the margins of the wound will be found infiltrated with the cancerous material, presenting the thickened, indurated, and everted margin so characteristic of the cancerous ulcer, and which, when once seen and appreciated, can hardly be mistaken.

Not so, however, with the innocent tumours, which are also liable to be connected at some period of their growth with an open wound and discharging cavity, for in these cases a very different condition presents itself to our observation; and to understand this difference it is essential to recall one or two points of difference which have already been mentioned in the nature of the innocent and malignant tumours.

It has been stated that it is the peculiar nature of the innocent tumour to affect the part in which it is developed purely mechanically; it may separate or displace tissues, but it never involves them in any other way.

On the other hand, it has been stated that it is the peculiar nature of all cancerous or malignant tumours to infiltrate and involve every tissue with which it comes in contact.

Applying, therefore, these two opposite features of the innocent and malignant tumours to those cases of both diseases in which the integument is materially involved, we shall readily understand how two very different local appearances will be produced; for in the cancerous, as just explained, the wound or surface will be characterised by all the peculiarities of the cancerous ulcer, whilst in the innocent tumour the integument will have given way purely from over-distension, and, as a consequence, the margin of the wound or discharging cavity will look healthy, free from all appearances of infiltration, and rather as if cut or punched out mechanically than ulcerated.

This great difference between the two affections is most important and is very palpable, and often enables the surgeon to form a correct diagnosis in a case where otherwise a difficulty might be experienced.

In the cystic adenoceles this healthiness of the margin of the wound is very marked, for it is not uncommon to find a sprouting and discharging intra-cystic growth protruding from the wound through the ruptured integument, and presenting a very doubtful and sometimes cancerous aspect; but if found projecting through an orifice of the integument which is uninfiltrated and apparently healthy, such as we have already described, the innocent nature of the tumour may with some confidence be declared.

On the Value of the Retracted Nipple as a Symptom in Tumours of the Breast.—There can be but little doubt that the importance of this symptom of the retracted nipple has been considerably over-rated, and that as a positive indication of cancerous disease it has been over-estimated. It may coexist with a cancer in the breast, as it may with some simple or innocent affection; but, on the other hand, a cancer of the organ may be present unconnected with any such morbid condition.

For a retracted nipple may be described as an accidental

symptom in the development of a tumour; it is the product of mechanical causes, and its presence is determined by the manner in which the gland is involved in the disease rather than in the nature of the affection itself. Should any tumour, simple or malignant—should any abscess, chronic or acute—attack the centre of the mammary gland, a retracted nipple, in all probability, will be produced; for as the disease so placed will necessarily cause material separation of the gland-ducts, their extremities—terminating in the nipple—must be drawn upon, and, as a consequence, a retracted nipple will be the result.

In the early stage of an infiltrating cancer of the organ this symptom is one of frequent occurrence, the nipple being always drawn towards the side of the gland which may be involved; at a later stage, however, of the affection, when the infiltration is more complete, the nipple may again project. In a central chronic abscess of the breast the retracted nipple is equally common, and in the true cystic adenocele it may be also present. In the ordinary adenocele, whether cystic or otherwise, it is rarely present, for very plain reasons, as these are not diseases of the breast-gland itself, but only situated in its neighbourhood; in rare cases, however, such an association may exist; in one case only have I ever observed it, and in that some blow or injury had preceded the development of the adenoid tumour, and it is open to a doubt whether the retracted nipple might not have been brought on by some chronic inflammatory condition, such a cause being well able to produce it.

On the Value of a Discharge from the Nipple for Diagnostic Purposes.—It is very questionable whether this symptom has really any material value for diagnostic purposes; and when the discharge is slight or of a bloody nature, it certainly does not indicate any special affection. It is well known that in *cancérous* affections a discharge from the nipple is not infrequent, the fluid having the appearance of blood-coloured serum, but it is never profuse, there being rarely more than a few drops.

In the *ordinary adenoceles* this symptom is seldom present.

In the *true cystic adenoceles* this symptom appears to be of considerable value, for in all the cases which have passed under my observation, and in the majority of the recorded examples, this discharge from the nipple was a prominent symptom, the fluid being generally of a mucoid nature; and more or less blood-stained; and although at times it occurred spontaneously, and with relief to the patient, at others it could readily be induced by some slight pressure upon the parts.

It exists, therefore, as a symptom in the true disease of the breast structure, whether cancerous or adenoid; it is but slight

and uncertain in the former, and more general and copious in the latter, and as a means of diagnosis becomes of some value.

On the importance of Enlargement of the Absorbent Glands as a Diagnostic Symptom.—When these are present with a tumour of the breast, they bear important testimony to the malignant nature of the disease; for in all the simple adenoceles no such complications exist, although in the inflammatory affections of the organ they may be produced.

Still in some cases of cancer of the breast many months may pass away without the appearance of these enlarged glands, and in one case of which I have the record a year expired without giving rise to such a symptom. Nevertheless, when they are present they are of positive value, and point towards the malignant rather than the innocent nature of the disease.

On the Value of the Tubercular and General Infiltration of the Integument over the Breast.—If there be one symptom which affords more positive evidence than another of the cancerous nature of the tumour in the breast, it is the one we are now considering, for no such symptom is ever present in any inflammatory or simple disease of the mammary gland. It is a genuine tubercular or general infiltration of the integument with the cancerous product, and, as such, is of special value. It may be slight, from the mere shot or pea-like affection of the skin, to its more general infiltration; but in all stages it is equally characteristic, and speaks in positive language of the cancerous nature of the mammary growth, one tubercle telling as plain a tale as many.

On the Excision of the Breast.—There is little or no danger attending the excision of the breast, beyond that which accompanies any or even the smallest operation.

It is true that patients occasionally sink after having passed through the operation, from pyæmia, erysipelas, or other causes, contingencies which attend any practice, but from the excision itself there is little danger to life. Of the 133 cases of cancer which I have noted in which excision was carried out, nine cases died, or about 6·7 per cent., death taking place in each from the following causes:—

One from pyæmia, on the thirty-fifth day; one from erysipelas, contracted several months after the operation, when the wound had healed; two from acute bronchitis, three weeks and a month respectively after the excision; one from profuse diarrhœa, on the eighth day, probably pyæmic; one from hæmoptysis, in the third week; two from exhaustion after a return of the growth, in three and six months; and one from actual sinking after the operation on the third day. The three cases which died from pyæmia, and from diarrhœa, and which was also probably pyæmic, and the one which sank on the third day,

may, perhaps, with justice be directly assigned to the operation, but the fatal termination in the remaining six examples had no reference whatever to the excision.

In the operations for the innocent tumour of the breast there was no fatal instance.

In operating for cancer it is unquestionably the wisest course to excise the whole gland, and it is as well not to be over-anxious about preserving too much integument, for if any doubt exists as to its perfect healthiness, the suspected portion had better be excised.

It is always important, when dissecting out the tumour, to keep clear of all diseased tissues, and in fatty subjects to leave a fair covering between the incision and the tumour itself, for there is good reason to believe that an early return of the affection is too often to be explained by want of attention to the practice to which I have just alluded.

In the operation for "*adenocele*," it is quite exceptional for the removal of the breast to be necessary, and in the majority of instances such a practice would be clearly unjustifiable. As a rule, the tumour is readily removed on making a clean section through its cyst-wall, and the breast itself is rarely injured, even by the operation. In exceptional examples, however, of this affection, it is absolutely necessary that the breast-gland should be excised, that is, where a large tumour is closely connected with it; and in the genuine or true cystic adenocele of the mammary gland—in such examples as I have already quoted, and in those alone. In the removal of a small tumour not involving the breast the best practice is to make the incision in a line radiating from the nipple, and to manipulate the parts as little as possible; the surest plan being to cut well into the tumour, having previously raised and made it prominent by grasping it with the thumb and finger of the opposite hand quite at its base.

In cases of complete excision the best line of incision appears to be that which corresponds with the course of the fibres of the pectoral muscle.

After both operations steady and moderate pressure, by the application of a firm pad to either margin of the wound, possesses many advantages, and a more rapid union appears to follow such a practice than any other.—*Guy's Hospital Reports, Vol.* x. 1864, *p.* 99.

112.—ON POLYPI OF THE RECTUM IN CHILDREN.

By M. GUERSANT.

This is far from being a rare disease, for M. Guersant meets in private or hospital practice from six to eight cases every year.

Generally the polypi are found just above the sphincter, but at some autopsies they have been met with higher up, and in one case even in the cæcum. Scarcely ever exceeding a small nut in size, they are usually found solitary and pediculated. The pedicle is more voluminous in recent polypus, and is composed of the mucous membrane which covers the hypertrophied mucous follicle constituting the substance of the polypus. Generally soft and bleeding, the polypus is sometimes tolerably firm and resistant. The symptoms are signicative, the child passing blood at stool, and especially at the end of the effort, and there are frequent desires to go to stool without any dejection taking place. When the fæcal matters voided are hard, they may be found grooved as a consequence of the pressure exerted by the polypus during their passage. If the amount of blood lost be not excessive, the health may not suffer for a long time; but when this is great, the child becomes pale and chlorotic. Generally, if the child be examined after going to stool, a red tumour is observed at the orifice of the anus, which returns after the evacuation, and this is usually mistaken by the friends for prolapsus ani or for a hemorrhoïd, which M. Guersant has never met with in these young subjects. The form of the extruded tumour and its pediculated condition distinguish it easily from the prolapsus, especially if it be followed into the rectum by the finger, when it is usually found fixed to the posterior side of the rectum, and on pressing it, it slips from under the finger like a cherry-stone. The affection is often mistaken, the child being sometimes treated for dysentery; and when the pedicle is thin, the polypus may be separated during the passage of the fæcal matter, and discharged, a spontaneous cure being thus produced. Ordinarily, however, the pedicle is firmer, and the polypus continues to reappear after each stool. Although the prognosis is very favourable, surgical interference should always be resorted to, and the more promptly in proportion to the amount of blood lost. The operation is very simple. An enema is given, and the tumour usually appears when the last portion of this has been returned. It is seized with a forceps, and a silk ligature passed around its pedicle. It is frequently discharged at once; but if not, the ligature is allowed to pass into the rectum with the polypus, which then comes away in the evening or next day. Having met with considerable hemorrhage from the use of the scissors, M. Guersant regards the ligature as the preferable means. Sometimes the polypus has to be brought down to the anus by means of the finger, and when this is rendered difficult by its slipperiness, a small polypus forceps should be passed in by the finger, and the tumour brought down by their aid, or, what is better, submitted to torsion without bringing down. Any

hemorrhage that follows may be arrested by cold-water injections or rhatany enemata.—*British and Foreign Medico-Chirurgical Review, July* 1864, *p.* 266.

113.—ON THE TREATMENT OF ALBUMINURIA IN CHILDREN.

By Dr. Wm. H. Dickinson, Assistant-Physician to the Hospital for Sick Children.

[The only state of disease to which the substance of the kidney is liable during childhood is that which gives increase of bulk with a smooth mottled exterior. The fundamental change in all such cases is an inflammatory state of the tubules, in consequence of which they become choked up by an excess of their own epithelial growth.]

The mechanical obstruction of the tubes is the only event to be feared. If the complaint proves fatal, it is in consequence of this occurrence. It is this which interferes with the formation of urine, occasions the accumulation of its components in the blood, and is the source of all the evils to which the victims of the disease are liable. It must be the aim of treatment to keep the tubes clear; this done, the disorder will right itself. The increased vascularity will subside when free secretion is possible; and, if nothing is done to keep up the irritation of the gland, the catarrh will soon be at an end.

We must seek then to increase the quantity of fluid which washes the tubes, without doing anything which can produce local irritation. In short, we must pass as much *water* as possible through the organ. This fluid is necessarily devoid of irritating qualities. It probably makes no demand upon the true secreting power of the gland, but passes by filtration from the Malpighian bodies.

I have adopted, since the year 1860, a plan of treatment founded upon these principles; and when applied to children, the results have been such that I have determined to bring them before the Profession.

The tendency of medical observers to find success in methods of treatment devised by themselves, is an influence probably more constant in its operation than any remedy to which suffering humanity is subjected. The consciousness of this source of error has made me very cautious in drawing conclusions upon this question, and has induced me to resort to what means I could of testing the results.

The treatment of the disease in grown persons does not enter into consideration here. The tardiness with which the adult kidneys respond to stimuli, makes a modification of the system necessary.

With children the method has been mainly hydropathic. The way it has been carried out, and the results which have been attained, will appear from the following details.

Every case of albuminuria in children which I have had to treat since October 1860, has been subjected to the same regimen, though in some cases the dropsy was so great as to seem to prohibit fluids. Notes have been kept of twenty-six cases, most of which were severe. Many others of less import, have come and gone among out-patients, and left no record. All have been restricted to a fluid diet, which has been of a nutritious character. Besides this, a certain quantity of spring water, varying from two to four pints, has been administered in the twenty-four hours. In three of the cases no other remedy was used. In the remainder the action of the water has been seconded by small doses of infusion of digitalis, or more rarely of acetate of potass. Lastly, when the active symptoms have disappeared, iron has been given, either as sesquichloride or acetate.

The results may be stated generally. Of the twenty-six cases thus treated, twenty-two were known to have recovered and to have got rid of every trace of albumen. Three improved greatly and had little evidence of disease excepting slightly albuminous urine, when they ceased to attend the hospital and were lost sight of. The remaining case ceased to be my patient, and, as I learned, eventually died. Thus, out of twenty-six cases twenty-five are believed to have recovered, which result is known to have been completed in twenty-two. Many of the cases were of the greatest severity, such that before the adoption of this system of treatment no expectation would have been held of their recovery.

These results do not suffer by comparison with those attained by other methods of treatment.

In the Hospital for Sick Children, I have been able to collect the particulars of thirty-nine cases which were admitted as in-patients between the years 1852 and 1861. Of these twenty are known to have recovered. Eleven died, while eight were more or less relieved. The remedies for the most part were aperients and diaphoretics, the latter including vapour baths and antimony. It must be considered, however, that from the inadequate size of this institution, none but very severe cases can be admitted; and, therefore, no equal comparison can be made between these results and those derived from more mixed cases.

Dr. Miller, in his work on Scarlatinal dropsy, states, that of sixty-nine cases afforded by dispensary practice, eight died. His treatment was that in vogue ten or fifteen years ago, by bleeding, purging, and sweating.

It was found that with the cases under consideration the number of days under treatment, before the patient was re-

tored to apparent health, varied from ninety-seven to four; the average of the whole number of cases being thirty. A certain time was then required to get rid of the last traces of albumen. The recovery was thus delayed to between 179 and seven days, giving an average of forty-five days from the commencement of treatment to the total disappearance of the albumen.

It was found that the use of the water when given under the circumstances stated, never increased the dropsy, but the contrary. It was usual, however, when the œdema was excessive, to let the digitalis set up a certain amount of diuresis before the full quantity of water was ordered. Many children take it eagerly, particularly in the early stages of the disease. The urine was often observed to undergo a notable increase in the quantity of renal epithelium which it deposited, and the albumen usually quickly lessened in greater proportion than could be explained by the increase in the quantity of the urine.

It was supposed, in one or two cases, not under my own care, that the treatment had a tendency to encourage hæmaturia; and although I have not observed this myself, yet it must be admitted that such an occurrence is not unlikely. If the kidney be congested the escape of blood is a natural means of relief. This cannot take place if the tubules are obstructed through which the blood must come. When, therefore, the plugs are washed out it is conceivable that an evacuation should take place which before was hindered.

The general use of iron during convalescence may be held to weaken the argument in favour of the other measures adopted. It may, however, be fairly presumed that it does not influence the original disorder, though it corrects the anæmia which results from it. As my object has been rather to benefit my patients than to make neat experiments, I have departed from simplicity in this respect.

Brief notes of one or two cases may be given as examples.

Case 1.—Eliza S., fifteen years of age, was admitted into St. George's Hospital under the care of Dr. Bence Jones, 10th Oct. 1860. A fortnight previously she had caught cold from dabbling about a street pump. The face and all the limbs swelled, and were much so when she came under observation. The complexion was pallid. She sat upright, with the shoulders supported by the arms; and it appeared from auscultation that two-thirds of each pleural cavity were full of fluid. The breathing was rapid. She coughed a good deal, and spat up bronchial mucus. She complained of pain in the loins, and micturition was frequent. The urine was bloody and highly albuminous. Specific gravity 1019. The use of the microscope showed that it contained abundant pus cells, but no casts. The only treatment adopted was the administration of four pints of

distilled water daily. By the 4th of November the albumen was reduced to a mere trace, and the colour of the urine was natural, excepting that it was less bright than usual. All the superficial dropsy had gone, and the pleural cavities gave evidence of diminished distension. But two days later she was unwisely permitted to go into the garden, and blood re-appeared in the urine. Coarse granular casts were now discovered, which consisted of broken-down epithelium. The relapse, however, was temporary, and by the end of the month she was practically well. The albumen was so diminished that its existence became a question. On the 10th of December, she was in perfect health. The face was rosy, the pleuræ fully resonant, the appetite great, and the urine absolutely natural. She now left the hospital, but returned to show herself occasionally. She remained in perfect health.

Case 2.—George T., three years of age, had an attack of scarlet fever which was followed within three weeks by swelling of the face, legs, scrotum, and belly. Diarrhœa came on, and the swelling subsided. The bowels remained loose after the swelling had entirely disappeared. He then had vomiting, which was frequent through the whole of one night, and in the morning three well-marked epileptic fits occurred in succession. He was now brought to the Hospital for Sick Children, and came under my care as an out-patient. He was visited at his own home. He was extremely pallid, but there was no trace of dropsy. The head was hot, the tongue coated, the pulse rapid—160. The urine was scanty, it was the colour of dark sherry, and when boiled the clot of albumen occupied half the bulk of the fluid. He was ordered to live entirely on slops, to drink two pints of spring water in the day, and to take as medicine a drachm of the infusion of digitalis, with half a minim of laudanum three times a-day. He had no more fits. The urine increased in quantity, and gave a copious deposit of epithelium and epithelial casts. Three days later all chance of head symptoms appeared to have passed away, and the tincture of sesquichloride of iron was ordered in the place of the opium. Next day the albumen was reduced to a hardly perceptible trace, and on no subsequent examination could any be discovered. Within a fortnight of his coming to the hospital he was in perfect health.

This example illustrates the treatment adopted on the occurrence of cerebral complications. Cupping, purging, and blistering are believed to have disastrous effects. An anæmic state of brain, of which dilatation of the pupil is a sign, is constantly found after death from anæmic convulsions; and such measures as these appear likely to increase the condition. Opium, on the other hand, is its direct antagonist. It fills, instead of empty-

ing, the cerebral vessels. It here seems to have been used successfully as an adjunct to means more directly bearing upon the renal affection. Experience shows that convulsive attacks are peculiarly apt to come on after the exhaustion of diarrhœa or vomiting, by which the cerebral and other vessels are drained of their contents.

The same measures which succeeded in this case have been used in others with the same result.

Case 3.—Edward L., six years of age, became an in-patient at the Children's Hospital, 11th September, 1862. In the absence of Dr. Hillier he fell to my charge. A month previously he had had the rash of scarlatina, but the disease was slight, and in eight days he was going about as usual. Four days before his admission his face swelled slightly, and his urine was observed to be scanty. When seen the œdema was excessive over the whole surface, and the skin had a transparent waxy appearance. The albumen was not large in amount, but the urine was very scanty. The child was depressed, the tongue coated, and the case apparently one of great severity. He was ordered to be fed upon fluids, including plenty of broth, to drink three pints of water in the day, and to take a drachm of the infusion of digitalis every four hours. Next day he was attacked with pain in the side, and a friction sound was heard over the lower part of the left pleura. No change, however, was made in the treatment, except that two leeches were put upon the place. The pleurisy passed away without the effusion of fluid, the urine became more copious, and the dropsy slowly diminished. On the 17th, it was necessary to stop the digitalis in consequence of faintness. The œdema now was scarcely perceptible. A mixture of the acetates of iron and potass, in the proportion of two grains to ten, was given three times a-day, and under its use all the remains of œdema disappeared, the child's aspect became ruddy, and all traces of albumen vanished. When he left the hospital, on the 17th of October, he was in perfect health, and could not have been recognised as the same child who had been admitted a few weeks before.—*Edinburgh Med. Journal, Sept.* 1864, *p.* 195.

114.—ON INCONTINENCE OF URINE IN BOYS.

By James Adams, Esq., St. Helen's Place, London.

[Some cases of incontinence of urine in boys are extremely difficult to relieve, but by the following simple plan a cure may generally be rapidly effected. Cases owing to stone in the bladder, or to worms in the small or large intestine, are of course only curable by treatment suitable to the cause. The treatment recommended by Mr. Adams is intended only for cases which

can be traced to no assignable cause, which are considered to depend on an irritable state of the bladder, and which are often attributed to weakness of constitution and struma, and for which steel, quinine, and strychnia are frequently ineffectually administered.]

The plan is one of great simplicity, and consists in encircling the root of the penis in a common elastic ring made of vulcanized india-rubber, such, in fact, as is used for stationery purposes. Let the bladder be emptied the last thing at night; the ring is then to be applied, and must be retained during the night, and removed early in the morning. It may be also used during the day if the bladder is irritable, which is not uncommonly the case.

In cases which have come under my notice, I have administered the carbonate of iron and an alkali, with an occasional purge of calomel and scammony; but I do not attribute much importance to the medical treatment, as I have always found that similar medicines have been ineffectually given before the ring was employed.

There is nothing new, after all, in retaining the urine in the bladder of children, as formerly it was the invariable custom to clap on the *jugum penis*, for five or six hours before the operation of lithotomy; but I am not sure that the plan I now mention has been used for incontinence of urine before. I can recommend it for its extreme simplicity and its unquestionable efficacy.—*Lancet, May* 28, 1864, *p.* 621.

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